

The Department of Anaesthesia, UCT 1920 – 2000 - A History



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The Department of Anaesthesia,
Faculty of Health Sciences, University
Of Cape Town

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Signed by candidate

NAGIN P PARBHOO

To the early pioneers and researchers
of anaesthesia in the Department.

.....And the Lord God caused a
deep sleep to fall upon Adam, and
he slept; and he took one of his ribs,
and closed up the flesh instead thereof:

Gen. 2: 21

University of Cape Town

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My thanks, in addition to all those above, are due to many professors and heads of departments in the Faculty of Health Sciences who provided statistics, research data and personal details. The names that come readily to mind are Professors S Benatar, S Cywes, H Rode, A Miller, D Kahn, P Gordon, J Viljoen, J Brink, J Biebuyck, J Coetzee, R Brown, B Mets, S Hoffman and M James. In each and every case, they have proved the adage "if you want anything done, ask a busy man" to be true. Their response has been amazingly prompt and helpful. Numerous interviews were conducted and both Professor Bull and Dr Jones were able to provide me with their biographical details and experiences before they passed on. I must especially thank Professor Gaisford Harrison with whom I spent many days over a period of time discussing both the history and research. Professor Harrison not only made much of his research material available to me but he also painstakingly read and re read the thesis offering valuable criticism and advice. The librarians of the UCT Medical Library were most helpful and courteous, the staff at the Colleges of Medicine as well as the Department of Anaesthesia at UCT have been very supportive. I am grateful to the Jan Pretorius Research Fund Committee who not only assisted me with a grant but also gave me a great deal of encouragement.

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University of Cape Town

ABBREVIATIONS

AGM	Annual General Meeting
B Sc	Bachelor of Science
COMSA	Colleges of Medicine of South Africa
CPA	Cape Provincial Administration
CSIR	Council for Scientific and Industrial Research
DA	Diploma in Anaesthetics
ENT	Ear, Nose & Throat
FANZCA	Fellow of the Australian & New Zealand College of Anaes.
FCA	Fellow of the Faculty of the College of Anaesthetists
FFARCS	Fellow of the Faculty of the Royal College of Surgeons
FRFPS	Fellow of the Royal Faculty of Physicians and Surgeons (Glasgow)
GSH	Groote Schuur Hospital
HD&OT	Heart Disease & Organ Transplantation
ICI	Imperial Chemical Industries
IPPR	Intermittent Positive Pressure Respiration
IPPV	Intermittent Positive Pressure Ventilation
MEDUNSA	Medical University of South Africa
MMed	Master of Medicine
MRC	Medical Research Council
MRCS	Member of the Royal College of Surgeons
NEA	Non Explosive Anaesthetic
NSH	New Somerset Hospital
OBE	Order of the British Empire
RCP	Royal College of Physicians
RCS	Royal College of Surgeons
RMO	Resident Medical Officer
SAIMR	South African Institute of Medical Research
SAM&DC	South African Medical & Dental Council
SASA	South African Society of Anaesthesiologists
UCT	University of Cape Town
UNISA	University of South Africa
VIMA	Volatile Induction, Maintenance Anaesthesia
WHO	World Health Organisation

PREFACE

This thesis presents a true chronicle of events with the aim of researching the history of the evolution and development of the Department of Anaesthesia, at the University of Cape Town, from the time of the appointment of Dr Bampfylde-Daniell, the first Clinical Lecturer specifically for the subject of Anaesthesia, at the New Somerset Hospital in 1920, to its present status in 2000.

Although it is accepted that the discovery of anaesthesia is related to the first public demonstration of the use of ether for pain alleviation by Dr William Thomas Green Morton in Boston, Massachusetts on 16 October 1846, it was only about 80 to 100 years later that the benefits of the annulment of pain were appreciated in the world. It is at this very stage that the Cape Hospital Board (established 1913) and the newly formulated University of Cape Town (1918), recognised the importance of anaesthesia as an important discipline in Medicine and made this appointment as a full-time post in the first teaching hospital in Southern Africa, namely the New Somerset Hospital which was opened to medical students in 1918. Prior to this, anaesthesia was provided by part-time sessional appointees, mainly private general practitioners in an honorary capacity.

The Academic status of Anaesthesia / Anesthesiology can be seen to be truly recognised only with the endowment of Chairs in this discipline, at two of the most prestigious universities, namely: the Nuffield Chair of Anaesthesia in Oxford in 1937 and the Isiah Dorre Chair of Anesthesiology at Harvard University in 1942. A major factor which stimulated this advance was the demonstration of the adjuvant use of curare in anaesthesia by Harold Griffith in 1942. By 1948, the Department at UCT was already engaged in research in curare and the publication elicited enquiries from RC Gill of the Gill Merrill expedition which went in search of large quantities of curare.

The academic growth in the Department was greatly enhanced when in 1951 a Joint Agreement between the University of Cape Town and the Cape Provincial Administration with regards to funding, management and staffing of those Provincial Hospitals which served as teaching hospitals, was concluded. With this agreement came the acceptance that the professional commitments of such staff were threefold involving:

- 1) Patient service
 - 2) Teaching – the propagation of knowledge
 - 3) Research – the expansion of knowledge
- 2,3 constituted the academic component.

As a result of these requirements the departmental staffing had to be commensurate with the rapid and profound development of the surgical specialities such as major vascular surgery, cardiac surgery, paediatric surgery, neurosurgery and organ transplantation. The provision and development of anaesthesia for such surgery has been documented herein. Along with this, the role of anaesthesiologists in the development of sub-specialities *pari-passu* with this complex surgery, namely Critical Care Medicine, Total Parenteral Nutrition and Pain therapy has been shown.

The teaching aspect from the time of twelve lectures in 1920 to a formalised tutorial and lecture system, regular post-graduate refresher courses run by the Department and the major input by various senior members of the staff at both National and International Congresses has been outlined. The appendices contain a list of all the post-graduate qualifications obtained by members of the Department over the period of 65 years since the establishment of the diploma DA RCP (Lond) RCS (Eng). That about 13 members and possibly more, have advanced to professorial status and are today either Heading or are part of major anaesthetic departments all over the world, has been documented.

Research and funding go hand in hand, and with the initial donation from the Anglo-De Beers Chairmans Fund as well as amounts from the Joseph Stone Foundation and the CSIR, research conducted in the Department has placed it clearly as one of the leading Departments internationally. The impact of such research in the fields of myocardial mechanics and circulatory function, liver function including

hepatic drug metabolism, Malignant Hyperthermia Myopathy (and its definitive recommended treatment with Dantrolene, which has reduced the worldwide mortality to almost nil), the Acute Porphyrias (some of which are unique to the Cape), the epidemiology of death associated with anaesthesia (one which has gained world wide recognition), the role of magnesium as a therapy, as well as many other contributions in the field of Critical Care Medicine of which special mention must be made of the pioneering work in the treatment of Tetanus by mechanical ventilation per tracheostomy, which has been life saving, has been outlined in detail. A summary of research conducted and its impact on anaesthesia locally and internationally has been recorded on pages 179-183. That such a small group of researchers was able to achieve as much, with limited resources, is commendable.

From the increase in staff from 4 to almost over 80 in 1987, with an increase in the number of anaesthetics administered to over 50,000, present day financial constraints in the Health Services generally and in the academic institutions in particular and how this has affected patient service and research has been traced. It has also been shown, how despite these radical constraints, the Department has coped under such adverse conditions and although the publication (of research conducted) rate had dropped for a while, it had improved considerably hereafter.

The discipline has for long been listed in the 'ancillary division'. A short review has been made of the change in 'status' of the anaesthesiologist and some biographies of anaesthetists / anaesthesiologists which could be of relevance, have been included. This is thus a history of and for 604 doctors who have passed through the portals of the Department of Anaesthesia at UCT.



THE DEPARTMENT OF ANAESTHESIA
UCT 1920 – 2000
A HISTORY

CHAPTER 1

Introduction

In the beginning

The Cape of Good Hope, now Cape Town, nestles in one of the most dramatic scenic settings of any city on earth. This is the noted Tavern of the Seas – shadowed by the bulk of Table Mountain, Devil's Peak and Lion's Head – a victualling port for the myriads of seafarers, Phoenicians, Arabs and Indians, the Dutch, the English, Portuguese and many others who foundered in storms off the Cape Peninsula.

The scourge of scurvy, fevers and dysentery encountered on the long voyages of discovery and trading necessitated the development of a hospital at the Cape. The 'Heeren Zewentien' or Council of Seventeen (also known as the 'Heeren Majores'), sitting in Holland, on 25th March 1651, selected Johan (Jan) van Riebeeck to start a settlement at the Cape. This committee at the summit of affairs of the Dutch East India Company, had its commercial hub at The Hague (Den Hagen) in Holland. Although the motivating force behind the settlement was economic, it was also entwined with the medical factor, for the extension of trade depended on the health of the men who sailed the ships. This is why it was decided to put the settlement under the command of Jan van Riebeeck, a medical man.

Jan van Riebeeck sailed in the *Dromedaris* in company with the *Goede Hoop* and the *Reiger*. He stepped ashore on 7th April 1652, the voyage having taken just over 100 days. The Company's instructions were implicit. It was not the intention to found a colony in Table Valley and on no account was anyone to be allowed to strike out for himself. Sufficient land was to be annexed for the establishment of the refreshment station and nothing more. The interests of the Company were to be paramount and its trading monopoly totally maintained. A fort, to be named Goede Hoop, was to be built for the protection of the water supply and the accommodation of the garrison and such sick sailors as might require attention on land. ¹

The tale of his first hospital and subsequent ones that followed has been told and interested readers are referred to the numerous history books on this subject ^{2, 3, 4}. The first civilian hospital in the Cape Colony was established in 1818. This was the first public institution to open its doors to any civilian in need of medical attention, and it was the direct result of the initiative, philanthropy and determination of one man, Dr Samuel Silverthorne Bailey MD.RN.⁵ His desire to set up such an institute was conveyed to the Governor Lord Charles Somerset ⁶ who admitted to the need but declared that the Government had no money for such a project. Bailey therefore obtained land near the sea and built the hospital in 1818, partly with a loan from the Government and the rest at his own expense. Lord Charles Somerset allowed it to be called the Somerset Hospital and for many years it was known as the 'The Somerset Hospital and Lunatic Asylum' for the reception of merchant seamen, slaves and paupers ⁷. All went well for a few years until 1821, when financial difficulties set in. The Burgher Senate then took over its ownership. The Senate, however, did not reappoint Dr Bailey but asked Dr L Wehr to be his successor. In 1828 the hospital was taken over by the Colonial Government and in 1830 Dr Bailey was reinstated.

In the following two decades after 1830, the Somerset Hospital became a nucleus of an active medical fraternity that was to lay the foundation for the future of medicine in the Cape. The first two trainee medical practitioners were Jacob Versveld ⁸ and Henry Bickersteth ⁹ who were apprenticed to Dr Bailey in 1819 and 1832 respectively. Bickersteth was a brilliant figure, who after his apprenticeship, went to London and qualified MRCS, LRCP of the Royal Colleges. He returned to Somerset Hospital in 1838 and was appointed Resident assistant Surgeon. In 1845 he succeeded Dr Bailey as Surgeon when he had retired. In 1853 he became a Fellow of the Royal College of Surgeons of England and also received his MD from St Andrews. Bickersteth took a lively interest in medical education and devised a system of medical instruction by lectures, dissection etc thereby setting up a 'Somerset Tradition' ¹⁰. Two Cape born practitioners, fresh from the academic climate in Europe joined the institute. Henry Anderson Ebdon ¹¹ and Francois le Seur Fleck ¹². They started the *Cape Town Medical Gazette* ¹³ and gave us an indication of the type of surgery being performed there. The commonest procedures being amputations, an attempt at aneurysm of the carotid artery, cataracts, empyema, fractures and abscesses.

Already in 1858, Ebdon wrote in the *Cape Monthly Magazine* ¹⁴ advocating a medical school in Cape Town. By now the hospital building was delapidated and falling apart, totally inadequate and insanitary. In 1839 a professional board declared that the hospital was unworthy of repair. It was only during the 1858 session of Parliament that a new general hospital was approved and £20.000 voted for its erection.

The foundation stone for the New Somerset Hospital was laid on 18th August 1859 by the Governor Sir George Grey. The hospital was built in Tudor style and looked like a turreted castle and was the largest building in the city on completion. It was completed in August 1862 and the first patients were admitted on the 23rd. The hospital provided for 100 beds but this soon proved inadequate and additions and extensions had to be made from time to time. Because of a lack of sufficient accommodation on Robben Island, the now named 'Old Somerset Hospital' was reoccupied by the chronic sick of the Cape. It was finally closed down in 1938. (Robben Island has today become an internationally famous World Heritage Site and is also the island where President Nelson Mandela was incarcerated for 27 years).

It is said that Dr Ebdon administered the first sulphuric ether anaesthetic in South Africa in April 1847, ¹⁵ a mere six months after Dr WTG Morton first demonstrated its use in Boston, Massachusetts on October 16, 1846. ¹⁶ In Cape Town, on Tuesday 20 April 1847 it was reported in *De Verzamelaar* id est *The Gleaner* ¹⁷ that "Mr Raymond, a Surgeon Dentist, has drawn two teeth from a gentleman without causing any pain on Saturday last". This was, as far as can be ascertained the first reported occasion on which ether was used in South Africa. An inhaler was used but is not described. Credit however, is given to Dr William Guybon Atherstone of Grahamstown ¹⁸ who had employed ether for the alleviation of pain, for a *major* operation, the amputation of a leg on 16 June 1847. The patient was the Deputy Sheriff of Albany who suffered from a contracture of the leg with ulceration as a result of erysipelas. A year later Dr Biccard of the Somerset Hospital was using chloroform anaesthesia.

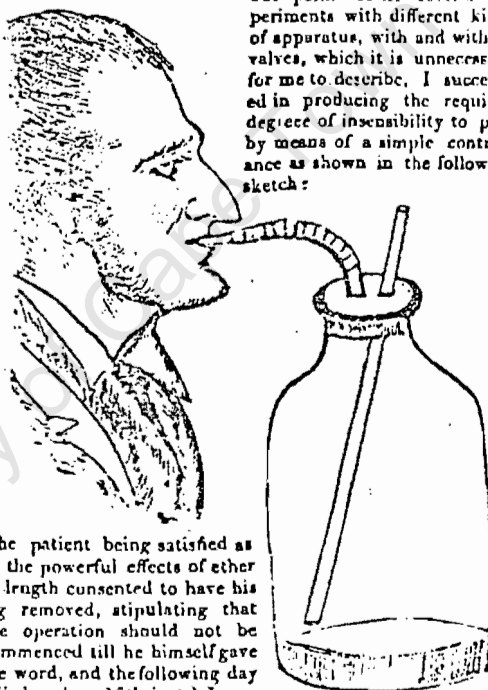
When the New Somerset Hospital ¹⁹ in the growing suburb of Greenpoint, along Somerset Road and the Atlantic coast, opened in August 1862, there was already talk of the establishment of a medical

SULPHURIC ETHER.

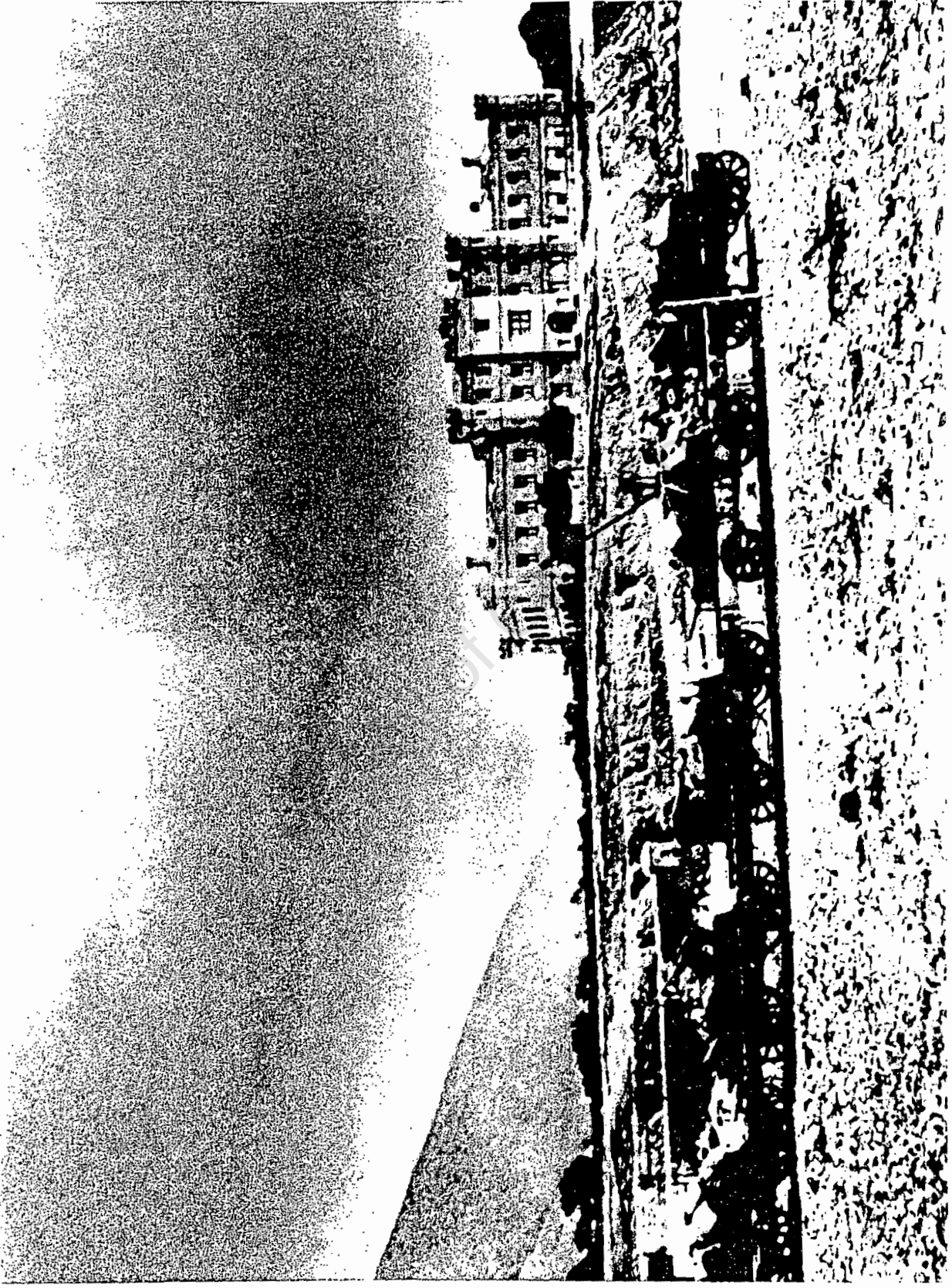
We now redeem the promise made in our last to state some additional facts relative to the surgical operation recently performed by Dr. W. G. Atherstone in the case of Mr F. CARLISLE, he being at the time in a state of stupor, caused by the inhalation of ether. The following particulars, interesting alike to the lover of science and friend of humanity, have been furnished by the operator:

The first opportunity I had of testing the efficacy of ether in surgical operations was on Mr. F. Carlisle, Deputy Sheriff of Albany. This gentleman about 27 years ago lost almost the whole of the calf of his leg from erysipelas, terminating in gangrene, which nearly proved fatal. From this very great contraction of the leg resulted, and for the last few years there has been an irritable ulcer, extending up into the bend of the knee, being a constant source of such continual pain and annoyance that he would gladly have got rid of the useless limb years ago if it

could have been removed without pain. After several experiments with different kinds of apparatus, with and without valves, which it is unnecessary for me to describe, I succeeded in producing the requisite degree of insensibility to pain by means of a simple contrivance as shown in the following sketch:



The patient being satisfied as to the powerful effects of ether at length consented to have his leg removed, stipulating that the operation should not be commenced till he himself gave the word, and the following day (Wednesday, 16th inst.) I amputated the thigh in its lower third, assisted by my father, Mr. J. A. District surgeon, Dr. Hadaway, 91st and Dr. Irwin, 27th Regt. After ten or twelve inhalations of the ether the patient put down his hand and pinched himself to ascertain what degree of sensibility there was. He then continued inhaling for a short time longer, when he again pinched himself and immediately said "I am drunk enough now—you may begin." The tourniquet was immediately tightened and at the same instant the first plunge of the knife effected without the least motion or sign of suffering on the part of the patient, who at this stage appeared perfectly unconscious, and continued inhaling the ether, mechanically opening and closing his nostrils with his own hand. So perfect was the insensibility that Dr. Irwin, who had placed his hand on the patient's arm, thinking he might start, finding not the slightest resistance during the

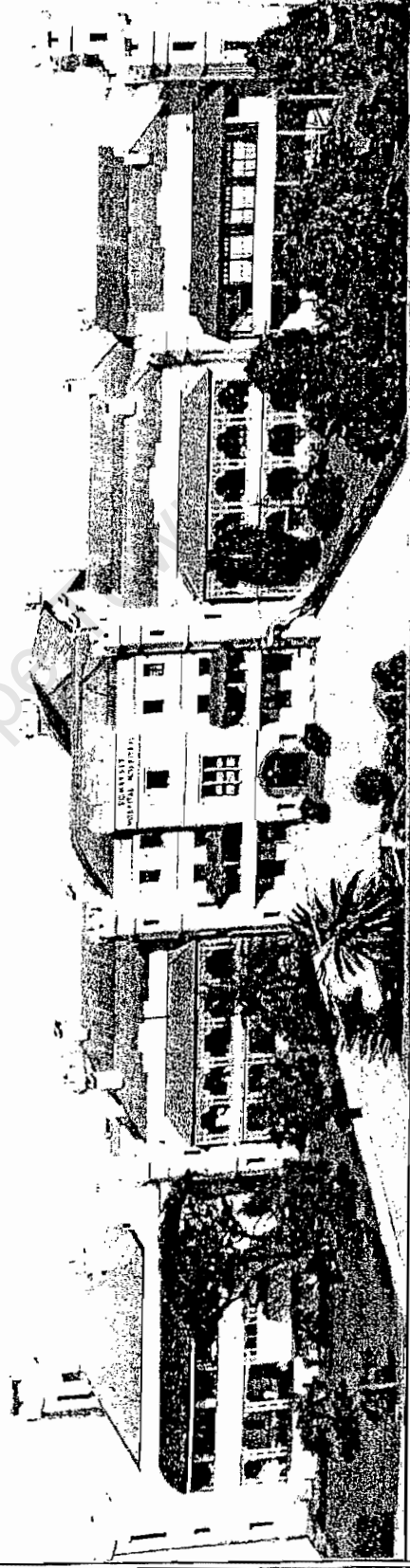


EUFEES CENTENARY

1862-1962

SOMERSET HOSPITAAL

SOMERSET HOSPITAL



faculty at the South African College, established in 1829, but many years elapsed before this became reality.

Ever since 1870 there had been at the back of some people's mind, the creation of at least one medical school in South Africa. One of the South African Medical Association Council's early tasks was to examine the arguments for and against this, stimulated by a presidential address by Dr Dodds.^{20, 21} Dr Darley Hartley²² who subsequently shared editorial duties of the newly formed *Journal of the Medical Association of South Africa* with Dr Louis Leipoldt, was a keen protagonist. He advocated that the early years of the undergraduate course should be taken in South Africa and that postgraduate education should also be organized here.²³

As a result of the rapid development of medical practice at the Cape in the closing years of the century, the local practitioners who until that time were forced to receive their education overseas (Leyden University; Royal Infirmary, Edinburgh;²⁴ Trinity College, Dublin; Guy's Hospital^{25, 26}, London, to name the most popular), became acutely conscious of the need for a medical faculty Representations were made to the South African College, but it was *only in 1890 that the Council of the South African College felt the ground firm enough beneath its feet to approach Edinburgh with the humble petition that it would recognize the South African College for scientific and laboratory work for medical purposes, so far as the chemistry department was concerned, then the strongest course at the College.* This may be regarded as the first practical move in the direction of medical education. The idea first mooted, stood its ground and in 1908, the South African College established a first year course for B Sc Agriculture and sought recognition from the Universities of London, Durham, Birmingham, Manchester, Bristol, Sheffield, Oxford, Cambridge and Liverpool.

Aspirant medical students of which there were 4 in 1908 and 4 in 1909 studied here for the first year and then proceeded to these universities for completion of the medical course. In 1909, the first medical course, a course in Public Health at the South African College was approved by the College of Physicians and Surgeons, Edinburgh and the Faculty of Physicians and Surgeons, Glasgow²⁷. In March the

following year, The South African College Senate proposed pushing for a second year course and urged Council to appoint Professors in Anatomy and Physiology.

Cecil John Rhodes ²⁸, the mining magnate who was originally based in Kimberley and whose vision was to colonize Africa from the Cape to Cairo and place the continent under the British flag, died on March 26th, 1902. He bequeathed to the nation, not only his home Groote Schuur for the use of all future Prime Ministers of South Africa, but also the huge Groote Schuur Estate *in the shadow of Table Mountain* for the development of a university for students from all parts of South Africa.

The Union of South Africa had hardly been formed in 1910 when the first Minister of Education, Rt Hon FS Malan took steps to collect information on the various institutions preparing students for the examinations of the University of the Cape of Good Hope, subsequently to be known as UNISA or the University of South Africa in Pretoria. A fact-finding commission headed by William (later Sir William) Thomson reported in some detail on 28 October 1911 ²⁹.

By 1911, 11 students enrolled in the medical course (310 attending the South African College as a whole), of these 8 fell by the wayside. At the end of the year only two wrote their examination in botany, zoology, physics and chemistry. These were William Waddell and J de Vos Meiring.

A much bigger issue arose as a result of the gift in 1906, a bequest in the will of Alfred Beit ³⁰ for an amount of £200,000. In 1904 he had donated his magnificent plantation at Frankenwald, ³¹ some twenty kilometers from the centre of Johannesburg, to the 'The University of Johannesburg' for use in perpetuity for educational purposes of all kinds, solely. General JC Smuts, Premier of South Africa wished this sum to be used for setting up a single national teaching university at Groote Schuur and to this end in 1919, Sir Julius Wernher ³² added £200,000, Mr Otto Beit ³³ (the residuary legatee of his brother's estate) £100,000 and De Beer's Consolidated Mines £25,000 to the original bequest, raising it to £525,000. The Government was also to match this amount pound for pound.

The vision of a single residential teaching University, to the postgraduate classes of which the scattered University Colleges should serve as 'feeder' was an inspiring one, and in November 1913, the Government appointed a University Commission³⁴, headed by Sir Percival Laurence, to go into this. The Commission reported in favour of allocating £350,000 of the £525,000 for university building at Groote Schuur and the endowment of such a University. This idea of a single great University was not to be realised. The differences between language and race began to be felt in the first years of the Union and a timely gift of £100,000 for endowing Victoria College, Stellenbosch, Cape, made it almost impossible for a Government to refuse linguistic dualism. In the end the Minister of Education decided to recognise the University of Cape Town, replacing the South African College and enriched with the bulk of the Wernher-Beit money, and the University of Stellenbosch, replacing Victoria College. All the other colleges were federated into the University of South Africa with its headquarters in Pretoria. The Charters of these three Universities were, respectively, Acts 14, 13 and 12 of 1916.

Within three weeks of the enactment of the UCT Act of May 1916, a subcommittee of the new Provisional Committee met to discuss the selection of the architect to design a great new university on Rhodes's Groote Schuur estate. Readers who are interested in further details of this development are referred to the Chapter 'Building the promised land: The Construction of the Groote Schuur campus, 1916-1929'.³⁵

The development of the University

On April 5, 1918, the University of Cape Town was officially inaugurated. The University was a direct result of the combination of 3 institutions: The South African College³⁶, Diocesan College (now known as Bishop's College)³⁷ and the Cape Town Normal College, and as such was empowered to give its own degrees in six faculties viz: arts, science, engineering, law, medicine and education. It could boast a staff of 60 members and 691 students.

The New Somerset Hospital (1862), the first teaching hospital in South Africa opened to students in 1918.³⁸ In 1919, the Chairs of Medicine, Surgery and Obstetrics and Gynaecology were advertised and the Clinical Lecturers would be appointed from the Honorary Staff of the New Somerset Hospital.

SOUTH AFRICAN UNIVERSITIES

- 1916** The South African Native College – later called
The University College and further
The University College of Fort Hare
- 1829** Het Zuid Afrikaansch Atheneum
Later named the South African College
- 1842** The Normal Seminary – 1842)
The Normal School of the Dutch Reformed Church – 1879)
Cape Town Normal College
- 1849** The Diocesan College (Bishop College)
- 1918** **The University of Cape Town** formed from the amalgamation of
the above 3 colleges.
- 1866** The Stellenbosch Gymnasium - became
- 1881** The Stellenbosch College which in turn was named
- 1887** The Victoria College of Stellenbosch. This college became
- 1918** **The University of Stellenbosch.**
- 1918** **The University of South Africa. UNISA** incorporating
The University of Good Hope (1873)
Rhodes University College – Grahamstown
Huguenot University College – Wellington
Grey University College – Bloemfontein
Natal University College – Pietermaritzburg
Transvaal University College
The University College of Potchefstroom joined in 1921.
- 1945** UNISA establishes a department of external studies enabling people
to study by correspondence.
- 1922** **The University of Witwatersrand**
- 1930** **The University of Pretoria**
- 1949** **The University of Natal**
- 1950** **The University of the Orange Free State**
- 1951** **Rhodes University**
- 1952** **Potchefstroom University**

- 1959 Legislation was introduced whereby the historically white universities could no longer admit black students except under permit. Ethnic universities established for other population groups.
- 1960 **The University College of the Western Cape** (Coloureds)
- 1960 **The University College of Durban-Westville** (Indians)
- 1960 **The University College of the North** (Sotho-Tsonga & Venda)
- 1960 **The University College of Zululand** (Zulus)
- 1964 **The University of Port Elizabeth**
- 1966 **The Rand Afrikaans University**
- 1970 **The University of Fort Hare** (limited to Xhosas only)
- 1970 **The University of the North**
- 1970 **The University of Zululand**
- 1970 **The University of the Western Cape**
- 1971 **The University of Durban-Westville**
- 1976 **The Medical University of South Africa - MEDUNSA**
- 1991 Universities were now free to admit whom they please.

Anaesthesia , up to this stage, was provided by general medical practitioners with an interest in the subject and who worked at the hospital in an Honorary capacity, on a sessional basis. It was their hope, that apart from providing a service to the community at large, they would be asked to provide anaesthesia for the private patients being operated upon by their sessional surgeons. A comment on this will be made later.

This situation was not unique to South Africa and in Australia it was said “Since the early days, anaesthetists have been appointed to hospitals as honorary consultants and contrary to public belief, the title honorary meant just that. Anaesthetic services to public patients were honorary. Anaesthetists received no payment and, for many this was a selfless task, demanding and a financially unrewarding task. It did not always lead to contact with private patients or to work in private hospitals”.³⁹

Much progress had been made in the last few years, and the Medical Faculty of the University of Cape Town was finally established in 1920. To go back to these years, we may recall that the newly completed anatomy and physiology laboratories of the South African College were officially opened on Thursday 6 June 1912. This date could be regarded as the foundation of the Medical School. Noteworthy was the fact that the first two years of medical study at the College, would be recognised by several established British universities. The Premier of the Union of South Africa (formed in 1910) the Hon. John X Merriman , in a characteristic speech of wit, humour and foresight, mentioned on this occasion “ we must own that within the past 50 years there has been an enormous advance in lessening human pain and misery. In that space anaesthetics had been discovered and had come into general use and few could realise what it must have meant in the old days when anaesthetics were unknown and people had to face very dreadful and hideous operations of which they read, without that palliation. No longer was the battlefield the scene of untold horror and the surgeon’s tent a mere shambles, thanks to antiseptic surgery.....”⁴⁰ This was the foundation of the first medical school in the Union of South Africa and the first in sub Saharan Africa. In comparison Canada had at least six medical schools, Australia three, India four and New Zealand and Malta one each.

Over the next eight years, several changes and additions were made to the staff of the first and second year courses. Many staff members had left to join active service during the First World War (1914 – 1918). In May 1916, Dr EB Fuller , Chairman of the Senate moved that the third year medical course be organised as soon as possible. This was recommended by the committee on 17 October 1916 with the object that three new Chairs, in pharmacology, bacteriology and pathology be established with a Lecturer attached to each. These were in addition to the Chairs in anatomy and physiology. The Higher Education Act of 1917, by which the University was to be state-aided on a generous scale, enabled the South African College to achieve these goals. In 1918, a scheme for the completion of the Medical School was laid before the Minister of Education for submission to the Cabinet. With the appointment of Lecturers in Medicine, Surgery, Obstetrics and Gynaecology, towards the end of 1919, it was made known that students would be able to proceed to the 'clinical years'. Up until this period, students, after attending one, two or three years, had to go abroad to obtain their degrees in medicine, enabling them to practise in South Africa.

Once the decision had been taken to establish the University of Cape Town on the Groote Schuur Estate in 1916, a resolution was adopted that the Hospital Board take into consideration the question of further hospital accommodation for the future . Professor Jolly insisted that the site be next to the University buildings on the slopes of Devil's Peak. This recommendation was accepted by the Cape Hospital Board in March 1917 and the first sod was turned for the Groote Schuur Hospital by Sir Otto Beit, in pouring rain on 2 July 1920. In this very year the Medical School Act No 33 of 1920 was promulgated.

The Cape Hospital Board was constituted under Ordinance No. 5 of 1912 of the Cape Province in March 1913 to control hospitals in the Cape Peninsula viz: New Somerset Hospital, Woodstock Hospital, Victoria Cottage Hospital, Rondebosch and Mowbray Cottage Hospital, Simonstown Cottage Hospital, Kalk Bay Hospital, Peninsula Maternity Home, McGregor Convalescent Home, Eaton Convalescent Home – Plumstead, Cape Town Free Dispensary, the Salt River Free Dispensary and the Cape Hospital Board District Nursing Organisation. The first Board consisted of 36 members under the chairmanship of Mr Polhemus Lyon. In his first Annual Report dated 13 March 1914 it is stated "The proposed School of

Medicine has occupied the attention of the Board from time to time. It can be stated that the Board never loses sight of this, and proposes that every encouragement shall be given toward furthering of this project.we recognise that South Africa should have its own Medical School, the beginnings of which have been slowly growing at the South African College,our Somerset Hospital, which has some claim to be spoken of as the national hospital of the Dominion, would prove a desirable field of study for embryo physicians and surgeons, and clinics for medical students conducted by the visiting surgeons and physicians would bring into the hospital a spirit of University life which is essential for a high standard of work in a large institution.....”

UNIVERSITY OF CAPE TOWN (MEDICAL SCHOOL) ACT NO 33 of 1920

Act to provide for the leasing of land upon the Groote Schuur Estates for purposes of a hospital which may be used in connection with the faculty of medicine of the University of Cape Town and for the establishment and maintenance thereon of such a hospital.

(Signed by the Governor-General in English)

(Assented to 16th August, 1920)

(Date of commencement – 19th August, 1920)

Preamble

WHEREAS under the University of Cape Town Act, 1916, a certain portion of the Groote Schuur Estates (which were transferred and vested in the Governor-General by Act no 9 of 1910 subject to certain conditions) has been reserved as a site for the University of Cape Town and the Governor-General is empowered under the first mentioned Act to make a grant of such portion to the University for the purposes thereof ;

AND WHEREAS such a grant is shortly to be made by the Governor – General to the said University ;

AND WHEREAS a faculty of medicine has, under the University of Cape Town Act 1916, been established at the said University and it is therefore expedient that there shall be provided as near as possible to the seat of the University a fully equipped hospital for sick people at which undergraduates and postgraduate students of the University may obtain practical teaching and training in medicine and surgery ;

AND WHEREAS the Cape Hospital Board is willing to establish and maintain such a hospital on the site aforesaid if provision is made for the grant to the board of a long lease of land on portion of the site aforesaid ;

AND WHEREAS owing to the facts hereinbefore recited it is expedient that such a lease should be granted on condition (*inter alia*) that the said Hospital Board should establish on the land leased such a hospital as aforesaid :

1. *Lease for the Establishment of the Hospital* – (1) After such a grant has been made by the Governor-General to the University of Cape Town of such portion of the Groote Schuur Estates as is referred to in sub-section (1) of section *three* of the University of Cape Town Act, 1916, it shall be lawful for the said University (anything to the contrary notwithstanding in the said Act or in Act No. 9 of 1910) to grant to the Cape Hospital Board a lease for the period of ninety-nine years at a rental not exceeding one pound per annum of land on the portion of the portion of the Groote Schuur Estates aforesaid :

Provided that :

- (a) the extent and situation of the land the ~~subject~~ of the lease shall be as agreed between the council of the said University and the administrator of the province of the Cape of Good Hope ;
- (b) it shall be a condition (*inter alia*) of the lease that the lessee shall, within a period of five years, erect upon the land so leased and maintain thereon thereafter during the period of the lease, a fully equipped hospital for the sick ;
- (c) it shall also be a condition (*inter alia*) of the lease that professors, lecturers and students (whether undergraduate or postgraduate) of the said University shall have access to the said hospital for the purposes of and incidental to practical teaching and training in medicine and surgery in accordance with such conditions as may be agreed between the council of the University and hospital board and approved by the administrator of the province of the Cape of Good Hope.
- (2) No transfer duty, stamp duty or registration charges shall be payable in respect of any lease granted under this section, anything to the contrary in any law notwithstanding.
- 2. *Short title* – This Act may be cited for all purposes as the University of Cape Town (Medical School) Act, 1920.

Professor Charles F M Saint from the University of Durham, Newcastle-upon-Tyne where he had worked under Professor Rutherford Morison, was the first to be appointed Professor and Head of a surgical firm and the ‘division of surgery’ and he arrived on 1 March 1920. Professor Saint’s typical theatre list on a Wednesday in those early years, at the New Somerset Hospital (which looks like a castle) consisted of the following :

Removal of knee cartilage, fixation of a tuberculous spine, repair of cleft lip and palate, gastroenterostomies, radical mastectomies, cholecystectomy and thyroidectomies, hysterectomy and excision of tongue and maxilla for carcinoma (quite common then).

Anaesthesia

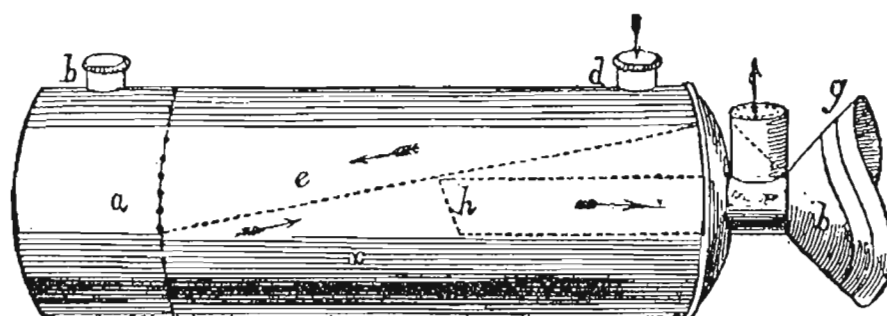
The early days

News of Dr William Thomas Green Morton’s successful demonstration of ether anaesthesia at the ‘Ether Dome’ in the Massachusetts General Hospital on 16 October 1846 reached Cape Town by oriental steamer *Pekin*. This P&O steamer left England on her maiden voyage to sail round the Cape to Ceylon and eventually Hong Kong, on 15 February 1847. Her voyage took her to Gibraltar, St Helena, Cape Town, Mauritius and Galle. As she plied her way, she left news of successful anaesthesia in England, in her wake having arrived in Cape Town on 1 April 1847.^{41, 42}

Besides this vessel, a flourishing slave traffic was then carried on between the east coast of Africa and North America. News, therefore, travelled quite easily. Dr William Guybon Atherstone appears to have been, at that time, completely unaware of the London trials carried out in 1847.⁴³ News of the University College Hospital amputation by Mr Liston⁴⁴ would have, therefore, reached the Cape by April. Apart from the demonstration lecture on the effects of laughing gas given by the South African Institute in the Town House in April 1846, which was voted 'the best evening's amusement for some time in the town'⁴⁵ there were two editorials in the *Cape Town Medical Gazette* - The Vapour of Sulphuric Ether and The Vapour of Ether^{46, 47} which would seem to establish Cape Town's claim to priority in this field in this country. In the third number (July 1847) the editorial proclaimed a new era for science with the advent of anaesthesia. The editorial stated 'In our early trials in April - a bullock's bladder distended with air and one fluid ounce of ether and fitted with a sponge mouthpiece was used to produce analgesia, the nostrils being compressed during inspiration. Later trials were carried out with the London 'Smee's'⁴⁸ apparatus in which valves prevented admixture of inspired and expired air. However, the only advantage of this apparatus over the bullock's bladder was one of comfort. 'In two or three of our own cases want of success attended our efforts to produce perfect insensibility to pain.... On the whole, however, it has been found to be an effectual mode of producing perfect insensibility to pain.'

In the October 1847 issue of the *Cape Town Medical Gazette*, two below knee amputations performed under general anaesthesia at the end of July were reported. 'In the first, the patient, a woman of about 55 years of age, was but partially under the influence of the ether, when the first incision was made. She afterwards declared that the sound of the saw passing through her bones gave her the *first* intimation of the operation having been commenced....this case has done remarkably well. The second case failed because of a defect in the apparatus employed. One can assume that at least one of the editors was involved in the trials. ie. Dr Ebdon or Dr Henry Bickersteth,⁴⁹ possibly at the Somerset Hospital.

In 1850 the *Zuid Afrikaan* on 3 June describes the first known use of chloroform at the Cape for the purpose of general anaesthesia. It described the disarticulation of the arm of a young girl in the shoulder joint by Dr FLC Biccard (1809-84)⁵⁰. 'The patient inhaled the wonderful article from the hands of



a. Hot water chamber.
b. Aperture with screw.
d. Aperture to admit air and ether, with a screw to be employed when the inhaler is not in use.

c. Ether chamber.
e. Diaphragm.
f. Mouthpiece.
g. Expiratory valve.
h. Inspiratory valve.

5 'MR. ALFRED SMEE'S INHALER' (1847)

(From the *Pharmaceutical Journal and Transactions* (London) (1846-47) v. 6, p. 425).



6 The Johannesburg Hospital in 1893 after the addition of the east wing (on the right).

Dr Biccard (the Sir Astley Cooper of the Cape) and during the separation felt no pain. She has perfectly recovered.’⁵¹

Despite the fact that anaesthesia was not available prior to 1842, surgery was nevertheless, being performed all over the world. Herbals, alcohol, opium, hypnosis⁵², cold and assorted techniques were intermittently employed to relieve the pain of surgery, but they were too unpredictable and proved too dangerous to be widely accepted. Operations which were terrible experiences for surgeon and patient alike, were accomplished mainly by holding or tying the patient down and getting the procedure over with in the shortest time possible. In view of the horrors of surgery without anaesthesia, to say nothing of the practical limitations inherent in attempting to operate on an unanaesthetized patient, it might be assumed that lack of anaesthesia inhibited the development of surgery prior to 1846.⁵³

Although surgical anaesthesia, one of the most humane discoveries in history, was introduced in 1846, it was not to be put to general use for almost another 100 years. When James Young Simpson, a Professor of Obstetrics in Edinburgh was using the vapour of chloroform to ease the pain of labour, he encountered much opposition. This came from both surgical as well as lay critics. The first charge levelled was that it would increase the already high death rate following operations. The clerical arguments varied but all had the same theme. Pain in childbirth was divinely ordained and its prevention was sacrilege. “Chloroform is a decoy of satan, apparently offering itself to bless women; but in the end it will harden society and rob God of the deep, earnest cries which arise in time of trouble for help.”⁵⁴ Simpson who was taught the bible as a child, countered all these arguments biblically.

The saving grace was in April 1853, when Her Majesty Queen Victoria had chloroform exhibited to her during late confinement by her anaesthetist Dr John Snow, for the birth of Prince Leopold and once again in 1857 for the birth of Princess Beatrice. “Her Majesty was greatly pleased with the effect, and she certainly never has had a better recovery.” And thus victory was won.⁵⁵ In the Cape Peninsula in the 1870s it was said that ‘In obstetric practice the exhibition of chloroform was the exception; craniotomy was preferred to Caesarean section’.⁵⁶

Anaesthesia hereafter, in the early 1920's was largely the 'rag and bottle' type. Intravenous fluid therapy was largely unknown and blood transfusion was still in its infancy. In these years some rural practitioners were owners of a Rotunda Hospital midwifery bag equipped, besides the essentials, with a special compartment for a chloroform drop bottle, a mouth gag, tongue forceps, large artery forceps and a Schimmelbusch mask. There was also room for cotton wool and a roll of gauze. Among the tablets were morphine, scopolamine, atropine, strychnine, ergotine, heroin and digitalin. "Occasionally the weather and the waterlogged condition of the farm roads made it impossible to move a seriously ill patient. On two occasions appendicectomies had to be performed on a kitchen table on a farm. On one occasion I had to operate on an acutely inflamed mastoid which in those days was an extremely serious surgical emergency. The girl was anaesthetized with chloroform, my nurse looked after the anaesthetic, the mastoid was opened with a small chisel and hammer and plugged with BIPP (gauze tape soaked in Bismuth Iodide Paraffin Paste) before the patient woke up. The patient recovered."⁵⁷ Dr TC Baker of East London had this to say "In 1931 anaesthesia consisted of an induction with chloroform or ethyl chloride followed by chloroform and ether or ether alone by the 'rag and bottle' method. A thick strap was used, now and then to restrain the patient! Later the Clover bag and Shipway methods were used, and even later Boyle's apparatus was introduced."⁵⁸

It would not be inappropriate to recall the experience of another of these rural practitioners Dr Eric John Dyke in Basutoland (Lesotho) in 1933: ".....I was called to a confinement some distance away up a mountain valley. There was a motor road to within an hour's ride of the village, so I took my dispenser with me. We saddle-bumped the last few miles in the dark....It was an autumn night with a cold wind blowing, which whistled through the reed sides of the hut and blew the candles out....Again a transverse presentation with a prolapsed arm. The dispenser gave the anaesthetic, but with the wind blowing and the cold he could not get the patient under. I endeavoured to do a version but with the patient struggling and the uterus contracting on my hand I could not find a foot.....To crown my difficulties my assistant told me that there was only half an ounce of chloroform left. I told him to pour the lot on the mask and smother the patient with a towel. After a few moments I felt the patient going under, a foot was found and version was soon performed."⁵⁹

The number of housemen at the New Somerset Hospital was at first limited to 5 and by 1927 rose to only 8. There were no full-time senior resident medical officers or registrars and the recently qualified graduates were often given most responsible tasks particularly as far as emergency surgery and anaesthesia were concerned. When Dr Frank Forman first joined the medical school, the Somerset Hospital was all but denuded of anaesthetists and he had to give scores of anaesthetics for major operations done by Doctors Moffat, Elliot and others. Chloroform and ether were used.⁶⁰

In 1922 the departments of ophthalmology and ENT were 'recognized' and in the same year anaesthesia, venereal diseases and vaccination were introduced as new subjects. As a result of the Medical School Act of 1920, clinical lecturers had to be appointed.

Initially these doctors formed part of the *non-teaching medical staff* of the New Somerset Hospital although they were involved with the medical students. Dr George Warwick Bampfylde Daniell was in fact the first anaesthetist to be employed as such in a South African Hospital - the Johannesburg General Hospital (founded in 1888 and to be later named the Hillbrow Hospital) near the centre of a gold reef that contributed nearly half of the world's gold output, in 1906.⁶¹ After joining the New Somerset Hospital in 1919, he was appointed the first Lecturer in Anaesthetics at the University of Cape Town in 1921.

The first anaesthetists at the New Somerset Hospital in 1920 were:

Dr GW Bampfylde-Daniell

Dr Alastair Gordon Forbes

Dr PWJ Keet

Dr J Mitchell

Dr JF Wicht.

The following biographical details of these and other World War I anaesthetists are of interest:

DR BAMPFYLDE DANIELL⁶² was born in 1864, 18 years after Morton's successful demonstration of ether anaesthesia at the Massachusetts General Hospital in Boston, America. He was the son of Reverend



7 Dr George Warwick Bampfylde Daniell.

GW Daniell of Kenbury, Devon, England. He received his medical education at St George's Hospital, London and qualified MRCS (Eng.), LRCP (Lond.) in 1888. The following year he came to the Cape, joining the British Medical Association in 1892 and settling in Caledon as a general practitioner. At the end of the Anglo Boer War (1899-1902) he returned to England to devote his time to anaesthesia. He held several appointments there which he listed in his personal Anaesthetic Register at present in the Africana Section of the University of Cape Town Medical School Library. An extract from page 241 of his register reads : 'At the following London hospitals I have worked and acted as anaesthetist : St George's as a student, 1886 – 1888 ; St Mark's 1902; West London 1902 officially ; Tottenham Hospital, 1902 – 1903 officially – gave chloride of ethyl, administered in that hospital for the first time ; Evelina, 1903 – gave chloride of ethyl for the first time administered in that hospital ; Edinburgh. Practised as anaesthetist in Edinburgh from July 1st 1903 to December 31st 1904 in partnership with Dr TD Luke. Lecturer and Instructor in anaesthetics to the Royal Infirmary Surgical Ward; Administrator in Anaesthetics to the special dental department where I gave chloride of ethyl and nitrous oxide gas for the first time in that department and several other mixtures, a number of which are recorded ; Deaconess Hospital. Anaesthetist and Instructor. Have given anaesthetics for a number of surgeons in 15 nursing homes; demonstrated ethyl chloride, Somnoform, etc. at Scottish branch of British Dental Association at Dental Hospital Edinburgh.'

Daniell's Anaesthetic Register is a meticulous record of his problematic cases while in England. Among the entries are the following: laryngeal spasm under chloroform; dilated pupils under chloroform; administration of ethyl chloride to lunatics; Cheyne–Stokes respiration under chloroform; surgical shock under chloroform ether mixture; reflex movements under deep ether anaesthesia; ether given in advanced strangulated hernia; and symptoms of circulatory failure after Somnoform.

A few of the surgeons for whom he acted as anaesthetist were JM Cotteril, CW Cathcart, Arthur E Giles, D Guy, A Logan Turner, Alexis Thomson, Harold J Stiles, Girdwood and S Paget. He recorded unabashedly in his register: ⁶³ 'Failure to produce satisfactory anaesthesia under nitrous oxide and oxygen. West London Hospital 1902. Strong muscular young man. No satisfactory depth of anaesthesia. Strong type of patient for this mixture. Changed to ether and all went well !'

Another entry: 'Vomiting when deeply under ether. West London Hospital. Operator: Mr S Edwards, FRCS. Operation: nephrectomy R kidney. Patient: M, aged 23. Nitrous oxide and ether, going on all through with ether. Patient placed on his right side well over, almost completely on his abdomen causing impairment to his respirations and a little duskiess. Rather more mucous than usual. Kept mouth open with Mason's gag, and jaw pushed forward. Tongue rather swollen and was sucked back on inspiration. Considerable shock with dilated pupils due to manipulation of kidney. When HS pushed the kidney towards the wound from the abdomen, the contents of the stomach were evacuated through the mouth and nose, the patient being deeply under at the time. Lightened anaesthesia towards the end of the operation with good results on pulse. General condition – good recovery and no vomiting after.'

Daniell's keen interest in anaesthesia started early in his career. He was interested not only in the use of agents other than ether and chloroform, but in developing and modifying existing anaesthetic equipment to make administration of the newer agents safer and simpler. He published numerous articles on his work and several advocated the use of ethyl chloride as a general anaesthetic. For further details refer to ⁶³. With his personal experience numbering over a 1000 administrations, he was convinced 'that if properly administered and to suitable cases, it will be found, for short operations at least, one of the safest and most convenient anaesthetics we possess.'

Daniell was gifted with an enquiring mind and great foresight. While anaesthesia was still in its infancy, he was absorbed with the various theories, chemistry and physiology of general anaesthesia. In a paper read before the Transvaal Medical Society in 1908 ⁶⁴, he delved to great depths on this subject. Many of his observations are still valid today. For reasons unknown, he returned to Cape Town in 1908 to acquire the practice of the late Dr Arderne Wilson. While in general practice he continued to work in anaesthesia and his contributions to the anaesthetic literature continued.

As the first Clinical Instructor in anaesthetics, Daniell played a major role in setting up anaesthesia as a subject; he instituted a course of 12 lectures on the theory and practice of general surgical anaesthesia. This included the following subjects: 'Properties and impurities of the chief agents employed; their

See opposite page

Vosloo, J.A. D
 Steyn, J.G. D
 Truter, D.R. M
 Steynson, A.E. M
 Reitz, Jan. D.R. M
 Symington, J.H. M
 Viljoen, F. D. M
 Weinberg, C. M
 de Vries, J.H. F.
 Pichler, T. M.
 Lichten, R. F.
 Craig, A. M. F.
 Brown, G. F.
 Marchand, L. M
 Smythe, J. F.
 Ordman, D. F.
 Palm, J.S. F.M.
 Pellar, A.
 Martens, J.G. M
 Reitz, E. D
 Mr. Lullough, A. D
 Reenen, J. J. M
 Van der Merwe, G. F.
 Noble, M. M. F.

The course of lectures completed.

The other course was excellent generally the full 24

Students being present.

J. W. Bampfylde-Daniell.

Lecturer in Anatomy.

May 1923.

See page 3.

Instruction

- 1923. studies.

St. Bonifacio Damier.

Certificate given
including fee
etc.

J.A. Vorloo and J.G. Steyn. Completed.
Prof. E. Kette. Prof. Mr. Cullough.
Went for 5 months holiday to England
returning Dec. 25. 1923.
Certificate given

D. Forbes

Certificate given.
no fees etc.

Mr. A.W. Craik & J. Brown.
Mr. David Ordman & J. F. van der Merwe.
Mr. W. Muller G.H. du Toit.
D. Theron J. Snythe
A. Puffar.
J.D.K. Kritz.
Certificate given

D. Muir

no fees etc.

D.R. Fruter.

~~Mr. D.R. Fruter.~~
" J. Snythe.

{ Mr. E. Heintz
Mr. R. E. Stevenson.

{ Prof. J.E. Martenson.
Mr. J.H. Symington.

Certificate given.

~~J.D.K. Kritz.~~
F.D. Villman.
L. M. Maichan.
J. J. van Ruman.
F. Richter.
J. S. Palm.
Certificate given

List of students for clinical instruction
only sent out to Dr. Forbes and Muir.

Grove

Pimstone, M. E.	7.
von During, A. G. W.	7.
Watts, E. W.	m.
Tucker, M. K.	m.
Eagle, P. C.	7.
Vollet, D. H. R.	7.
Eagle, G. Z.	m.
Bishop, B. W. W.	m.
Foster, H. P.	B
Holz, J.	B
Lipschitz, J. T.	B
Hoffman, S. S.	B
van Zijl, F. D. du T.	B
Kritzinger, J. A. P. J.	B
Murray, W. M.	B
Goodman, S.	m.
Langde, S. A.	m.
Donolly, F. A.	7.
Malan, J. M.	7.

Course of lectures completed. Afternoon gone

J. W. Baughly de Russell.

June 30th 1924.

D. Darnell retired from Architectural &
Luminescent Corp. & Dr. Brillmont's appointment
^{Milwaukee}
about July 16th 1924, Special Jan. 14th to appoint him.
It was understood that he would give instruction in
gas to all students of my lecture class on ^{every} Friday in
the dental dept. In a letter from him in reply to report of the
Bureau he stated that he attended the dental department
only to his own students and only gave them Chinese
in the place of gas as no gas available there.
I had an interview on the 19th & fine 1925 & the
same condition existed. He has made application
for gas but was refused by the Head Superintendent
of the Luminescent Hospital as ^{Dr.} non-physician.
Dr. Forbes & Kinn do not attend the Dental Dept. as
I have not done so from the first.
I did see up to my retirement on June 1925
and after my subsequent retirement in Dec 31 - 1925.
and after my subsequent retirement in Dec 31 - 1925.
and a few cases of Dr., I also gave instruction in Chinese
to a few cases of Dr., I also gave instruction in Chinese
to a few cases of Dr., I also gave instruction in Chinese

D. Foster.

Primitone Mr. E. x Certificate given 12/5/25.
 Van. During A. G. W. v do. ...
 Eagle P.C. x ... do. ...
 Vollet. D. H. R. v do.

no case etc given

Dorothy. F. A. Certificate given March. 16/25.
 Nolan. J. M. v do. do. do.

Certificate given.

D. Muri.

Watts. E. L. v Certificate given 12.5.25.
 Tucker. Mr. H. v do do do
 Eagle. J. F. v do do do
 Bishop. B. W. v do do do
 Goodman S. v do do do
 Lange. S. A. v do do do

no case etc given

Certificate given

D. H. Berlowitz

Foster H. P. x Certificate given 25.5.25.
 Hols. Y. v do do do
 Lipschitz J. T. v do do do
 Hoffman S. S. x
 von Lijl F. D. out
 Krieger J. A. v do do do
 Murray. W. M. v do do do

case & Certificate given

17.10.25.

Certificate given.

Sub of statement for Clements not mentioned only sent on to D. Foster, Muri, and Berlowitz.

appoint him:
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 day in
 4 to 14
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 house

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 has
 been

Defect in

une 1923
 1923.
 Part for to him

physiological action; the preparation of the patient; the administration of nitrous oxide alone; with air and with oxygen; various methods. The administration of ether; chloroform; ethyl chloride; anaesthetic mixture; sequences and alterations. (Apparatus will be shown in connection with the above and may be examined by the students.) The selection of anaesthetics, sequences and methods, in ordinary routine cases; the selection, etc. in particular cases. The state of the patient; the nature of the operation; the use of morphia and other alkaloids in conjunction with anaesthesia, difficulties and dangers in administration; their causation; prevention and treatment; shock in its relation to anaesthesia; the recovery and after condition of the patient. Practical instruction will be given in the operating theatre of the Somerset Hospital every Tuesday from 12-4pm, also in the dental department by arrangement.'

Daniell often gave lectures at home and these frequently ended as social gatherings. In 1923 Daniell, now aged 59, retired from New Somerset Hospital ⁶⁵.

What of his colleagues A Gordon Forbes, PWJ Keet, J Mitchell and JF Wicht ?

DR ALASTAIR (ALGY) GORDON FORBES ⁶⁶ was born in De Aar in 1886, and as a young boy of 14yrs served in the Town Guard there during the South African War. He studied medicine at Edinburgh University, graduating MBChB in 1912 and was house surgeon at Greenock Hospital. He returned to South Africa in 1914 and when war broke out in the same year, he joined the South African Medical Corps and served till the end of hostilities, with the South African Expeditionary Force overseas. He held the rank of Captain in the Corps.

On his return to South Africa, he commenced practice as an anaesthetist, an interest he developed while yet a student in Edinburgh and where he had administered a record number of anaesthetics prior to qualification. After demobilization he transferred to No 1 Company (Cape) of the South African Medical Corps and was appointed Lieutenant-Colonel in command of this unit in 1926. His war decorations included the Military Cross, General Service Medals, including the 1914-15 Star, the South African War Queen's Medal with clasp, the CAF Officer's Decoration, the CAF Long Service Medal and the St John Medal.

In 1919 Dr Forbes settled in Cape Town and was appointed honorary Anaesthetist to the New Somerset Hospital. He was closely associated with the surgeon Dr Alan WS Sichel since the Edinburgh days as well as at Groote Schuur Hospital where he gave anaesthetics in the Eye Department. In 1922 Dr Forbes and Dr Royden McIntosh Muir, both of whom who had joined Dr Daniell in private practice, were made clinical teachers in anaesthesia. Five years later in 1927, they were appointed lecturers. In 1938 Dr Forbes was appointed full time Head of Anaesthesia and served in this capacity for 4 years, till his death at the age of 55 years in 1941.

Dr Alan Sichel wrote : "In private, too, he worked with me over a long period. He was much criticised for not keeping up to date in the methods of anaesthesia, but for all that he was a worthy representative of the old school. I can say conscientiously that no anaesthetist has given me a greater feeling of confidence..... Forbes was a jovial soul. He appreciated telling and hearing a good story, and loved nothing better than recounting some episode of his student days. He had a great regard for his Alma Mater....." ⁶⁷

DR PETRUS WILHELMUS JOHANNES KEET graduated MB ChB from the University of Edinburgh in 1914. For a few years he was in general practice at 'de la Rey', Marais Road, Sea Point, Cape Town. In 1920 he was appointed honorary Anaesthetist to the New Somerset Hospital . He remained in this post for a while and in 1923 was appointed additional Physician in the Department of Medicine at the same hospital. In 1931 he was appointed temporary assistant Clinical Lecturer and in 1935 succeeded Dr Silberbauer who had resigned, as Lecturer in Clinical Medicine and Head of a Medical Firm.

DR JOHN MITCHELL obtained his degree MB ChB from the University of Aberdeen in 1909 and the RCS from Edinburgh University in 1911. He arrived in South Africa in 1916, commencing practice at Lancaster House in Greenpoint, Cape Town and was appointed honorary Anaesthetist at the New Somerset Hospital in 1920. He remained here for a short while only.

DR JOHAN FREDERICK WICHT graduated MB ChB from the University of Dublin in 1920 . On his return to Cape Town in 1920 he was appointed honorary Anaesthetist at the New Somerset Hospital where he remained for a while. In 1927 Dr Wicht was appointed in a full time capacity as outpatient tuberculosis

Officer and Medical Superintendent of the City Infectious Disease Hospital. He served here for many years and was lecturer for Infectious Diseases at UCT. He was born in 1896 of an old Cape Town family, went to South African College School and then took his degree in medicine at Trinity College, Dublin after which he studied diseases of the chest at the Brompton Hospital, London. He returned to Cape Town to take the DPH and became associated with Dr Jasper Anderson at the City Hospital. In 1939 he was granted special leave to volunteer for active service during the war. Dr Wicht had served in the Navy during World War I, and when World War II was declared, he insisted on enlisting, notwithstanding a severe leg injury he received from a riding accident. He was stationed at Freetown as Lieutenant Commander but soon released because of ill health. He retired in 1953 and died in 1955 after a long illness.

In 1922 Drs A Gordon Forbes and Royden McIntosh Muir were appointed Clinical Lecturers and they were joined by Dr Harry Berelowitz a GP Anaesthetist.

DR ROYDEN McINTOSH MUIR ⁶⁸ was born in Wellington, New Zealand, in 1891. His boyhood days were happy ones that engendered in him a roving spirit. With some difficulty he managed to secure sufficient financial backing to study in Edinburgh to undertake a university course in medicine. His choice of medicine as a profession was largely due to the appreciation of the fact that as a doctor he would be able to travel as a ship's surgeon.

Soon after qualification he joined a steamship company and travelled around the world. In 1914 he enlisted in the RAMC and saw service in France. His love of the sea caused him to apply for a post on a P & O hospital ship and he travelled to the Dardenelles, India and East Africa. On demobilization he returned to London and took up the study of anaesthetics, which at that time was established as an independent specialty.

The Cape had appealed to him and in 1921 he joined the practice of Dr Bampfylde Daniell and immediately established himself as an able anaesthetist. In 1922 he was appointed Clinical Lecturer in anaesthetics at the University of Cape Town, first at the New Somerset Hospital and later at Groote Schuur Hospital. Dr Muir trained on chloroform and ether and he mastered the use of these two agents. Having

worked with Dr Ralph Waters in Madison, USA, he introduced cyclopropane to London and to Cape Town^{69, p14}. The clinical use of this gas was established in 1933 by Waters. Cyclopropane was a powerful respiratory depressant and from 1935 became popular in thoracic anaesthesia, because it facilitated intermittent positive pressure ventilation which was advocated for thoracic surgery- this was before the advent of muscle relaxants. Muir possessed that sixth sense that enables an anaesthetist to control the depth of anaesthesia best suited to the circumstances. His bedside manner inspired confidence.

He was a critical judge of surgery, for he had seen much over a wide field. He believed that a surgeon should do just what was necessary – no more and no less. Being a first class raconteur, he was a most popular lecturer with a dry sense of humour. He read papers on anaesthetics at meetings in Great Britain and in the USA⁷⁰ in response to invitations to do so.

Dr Muir was the first President of the Anaesthetics Group of the Medical Association of South Africa and President on the first occasion that anaesthetics was accorded a section at the Annual Congress of the Medical Association of South Africa (Oct 1946). He was also President of the South African Society of Anaesthetists in 1944. Muir retired from practice in 1947 at the age of 56. He assessed his finances as being just sufficient to meet modest requirements for his normal expectation of life and he planned to travel and write. He had, in the interval, visited East Africa and the Congo and had journeyed to England to join the yacht 'Cariad' on the first stage of her journey around the world. It was in Basutoland (Lesotho), where he was a member of a party visiting the Highlands of the Drakensberg, that he met an untimely death. Hard mountain travel at a high altitude had evidently overstrained his cardiac reserve. He died as he would have wished, suddenly.

Widely read and much travelled, Muir was an excellent companion. He enjoyed the society of his fellows. He was essentially a clubman. His long service on the committee and, in particular, as a Chairman of the City Civil Service Club, testifies to the esteem in which his fellow members held him. Dr Muir enjoyed such hazardous pastimes as aviation and mountaineering. He gained his pilot's certificate.

Muir had many of the sound qualities that characterize those that hail from north of the Tweed, but the more dominant of these were tempered by what he called his eastern strain. The name Muir, he maintained, was derived from Moor and indicated Moorish blood in his veins.

By now asepsis and antisepsis were widely accepted and these with improved anaesthesia, widened the scope of surgery enormously. Nitrous oxide, although widely used in England, was at a premium in South Africa. There was no local manufacturer, and cylinders of the gas had to be imported from England and returned for refilling and testing. The high cost of this was further increased by the fact that full cylinders were treated as dangerous cargo and could only be transported at special rates on special ships as deck cargo. A period of three months for the round trip to get refills was about the minimum. During the 1914-18 First World War, the shipment of cylinders was prohibited altogether and it was revealing to find that until the early 1930's the use of nitrous oxide remained uncommon and was limited to special cases. It was not until 1928 that the firm Allen Liversedge Industrial Gas was opened and started producing it on a commercial scale in South Africa. This firm was later to become African Oxygen & Acetylene (Pty) Ltd and after several years African Oxygen Ltd.

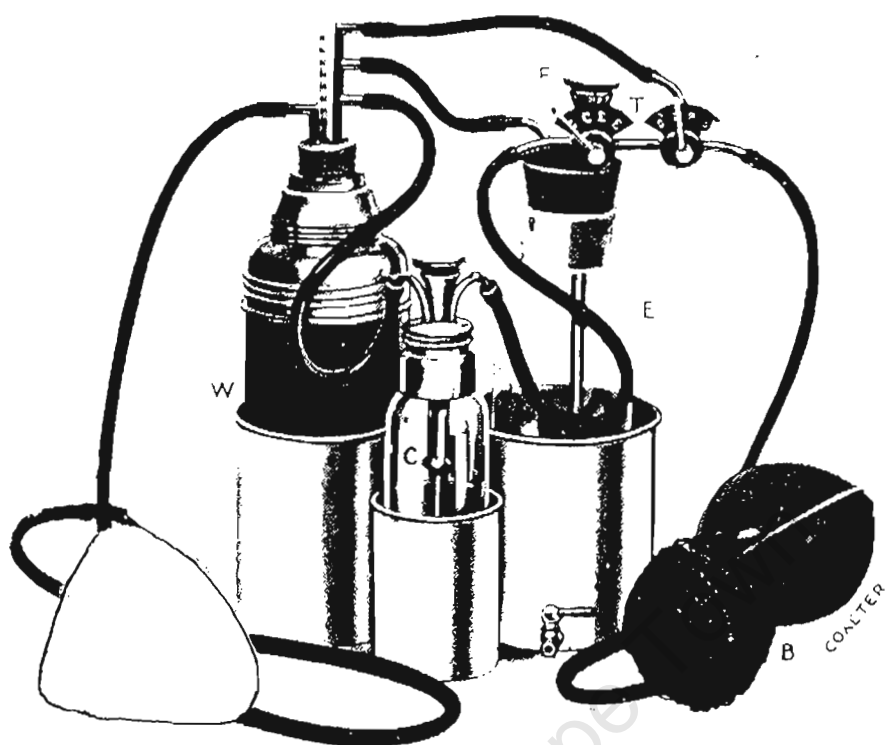
Oxygen too, was not readily available until the industrial demand occasioned it, and even then it was a rarity outside bigger centres owing to the cumbersome nature of the cylinders and difficulty of transport. On rare occasions, when oxygen was required medically, it was prepared by the laborious method of heating potassium chlorate and storing the few litres of oxygen obtained, in bladders. Professor Arthur Bull recalls being told by his father, that, while he was yet an apprentice pharmacist in 1902, he was involved in preparing oxygen for Cecil John Rhodes, who was dying at his cottage in St James, Cape Town. It was not until 1911, some twenty five years after the modest start in London, that oxygen was first produced in South Africa. The demand was so limited that production was hardly worthwhile until the First World War faced the country with the need to shift for itself. Because the mining and industrial expansion had greatly accelerated, a number of independent oxygen producers were founded. In 1927 six of them amalgamated to form the single organisation African Oxygen & Acetylene (Pty) Ltd. One of their first decisions was to build a factory in Victoria Road, Salt River.⁷¹

The state of affairs in anaesthesia in Cape Town, in the early 1920's has been accurately recorded by two anaesthetists of the New Somerset Hospital viz: Dr Harry Berelowitz ^{72, 73} and Dr Eric van Hoogstraten. ⁷⁴

DR HARRY BERELOWITZ was born in Lithuania in 1889 and emigrated to South Africa in 1907. He was appointed honorary Visiting Anaesthetist at the New Somerset Hospital in October 1922. He wrote, "Six weeks after my arrival I got a job in a general store in Willowmore, a village in the Karoo. I studied in my spare time, saved every penny and by 1914 was able to go to the University of Edinburgh and get my degree in 1919.

The next 15 months were spent in study and medical work. I returned to South Africa and on the 1st September, 1920 became House Surgeon to Professor CFM Saint, the inaugural Professor of Surgery ⁷⁵ and Dr AH Moffat ⁷⁶ at the Somerset Hospital, then the teaching hospital of the newly formed Faculty of Medicine of the University of Cape Town. I held the appointment for 12 months and left Cape Town, but returned one year later. In October 1922, I was appointed honorary Visiting Anaesthetist to Professor Saint. Two years later, in 1924, the University of Cape Town began to pay me a yearly honorarium of £25 for teaching the students. In 1936 it was raised to £50 per year, till the Provincial Administration took over the hospitals and paid all the doctors per session " In these early days, anaesthetists treating private patients were paid by their surgeons. This amounted to little more than 5% of his fee. Dr Berelowitz said " I do not get paid. I just receive a tip! In Edinburgh I was taught the use of chloroform, but in Manchester I learned all about ether and I preferred it to chloroform. When called upon to teach anaesthesia, I concentrated on demonstrating how to induce anaesthesia with ether by means of the open drop method, and to maintain it either with Shipway's warmed ether vapour ⁷⁷ or with the drop bottle."

" But as chloroform and its mixture with ether was extensively used all over South Africa, the students were taught to use pure chloroform, C₂E₃ (a chloroform and ether mixture), and ethyl chloride followed by ether. Students were also taught dental anaesthesia consisting of nitrous oxide alone, or with air, or ether anaesthesia by means of a Clover inhaler with or without an ethyl chloride attachment, the patient sitting in an upright position in a dental chair."



9 The Shipway Apparatus



10 The Junker Bottle



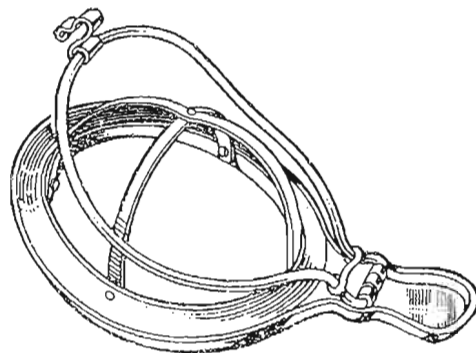
11 Pinson Ether Bomb



12 Clover's Chloroform Bag Inhaler 1862



13 Dr Berelowitz's Mc Kesson Apparatus



14 Schimmelbusch Mask

“Intratracheal ether by the insufflation method was introduced by me in 1922, soon after my appointment. The event that brought it on was an operation by Professor Saint for excision of a malignant maxilla – a formidable operation at that time and still is so. He did a preliminary laryngotomy to pack off the pharynx and provide me with an airway. The strong ether vapour from a Shipway was unsuitable as it would have caused a fulminating tracheo-bronchitis, so I used chloroform vapour from a Junker ⁷⁸, given by means of a small catheter placed in the laryngotomy tube. The patient did well but I was not satisfied. It was evident to me that I needed better control and no laryngotomies. All I needed was to blow into the patient’s lungs a big volume of air carrying a weak ether vapour, thus making me independent of his breathing and free from the danger of chloroform. The air was easily provided by an electric airblower, the weak ether vapour was obtained by blowing the air over the surface of a wide jar containing ether, (not bubbling through a Shipway). To warm up the ether laden air was easy enough. The main problem was not to rupture the patient’s lungs. A mercury blow-off safety valve giving adjustable pressure made it safe, I tested the strength of the ether vapour by blowing it into my nostrils and I found it non irritating. A makeshift laryngoscope had to be improvised for intubation with elastic catheters. Like all first products it was primitive, but it worked efficiently for a decade. I found endotracheal insufflation flexible and easy to control. Difficult surgical problems such as laminectomies, cancer of the tongue, glands in the neck, operations on the jaw, thyroid or the skull became easy. The rhythmic throb of the blower became a familiar sound in Saint’s operating theatre, enlivened the proceedings and filled it with an air of cheerful confidence. It also made visiting doctors anaesthetic - conscious and quite a number of them discussed their anaesthetic problems with me. I gradually realized that just as Professor Saint would shape the future of surgery in South Africa, so would my work as his anaesthetist have an influence on the future of anaesthesia.”

This appears to be a description of the first use of this technique in South Africa. Although Sir Ivan Magill introduced endotracheal anaesthesia on a wide scale in England in 1921,⁷⁹ we doubt whether Dr Berelowitz had knowledge of the work of Magill at that time.

“I taught the students the new techniques as soon as they were established, for I believed in modern methods. When I bought a McKesson machine,⁸⁰ I used to bring it to the Somerset Hospital and

teach the students how to use it. When Boyle's machines became available the students were taught gas oxygen ether with the Boyle machine, as well as intratracheal intubation by the visual and blind methods. Avertin was used as soon as it became available, chiefly for thyroid cases, for the operation for toxic goitre was called 'stealing the thyroid', the patient not knowing of the operation until it was over. When Pentothal came the students were taught its use and administered it in my presence. My attitude to the relaxants was the same. I had faith in the ability of the students to learn the technique of modern anaesthesia."

"A few words about my colleagues. Dr GW Bampfylde Daniell was the most senior member of the staff. Next in seniority was Dr AG Forbes. Their methods of anaesthesia were the standard methods of their time. Later on in 1923, Dr Royden Muir joined Dr Daniell in partnership and succeeded him at the Somerset Hospital. He brought with him from overseas the Pinson Bomb⁸¹ (now in the Department of Anaesthesia Museum, Groote Schuur Hospital) for giving ether vapour after induction, which was by Hewitt's wide bore ether inhaler⁸². Later on he did much spinal anaesthesia in the Urology department of the hospital and did likewise in private practice."

"In 1933 Dr Muir went to the United States of America and learned with Ralph Waters the use of cyclopropane. On his return he spent some time in England where he demonstrated its use." Dr Berelowitz continues, "In 1930 Dr Eric van Hoogstraten, a graduate of our own University started in Cape Town as a specialist in anaesthesia. He had been in England and returned with a Mc Kesson machine for giving pure gas and oxygen for major surgery. In no time the whole town became gas and oxygen conscious and for an anaesthetist to use ether was almost a misdemeanor. How was it given for major abdominal surgery? Let me describe it. It may sound incredible, but it is described in the textbooks. It is called Secondary Saturation.^{83, 84} Briefly – pure nitrous oxide gas is given until you have muscular spasms, widely dilated pupils and almost complete respiratory arrest. At this stage you turn on 100% oxygen, but if respiration has already stopped you inflate the lungs with pure oxygen under pressure. This revives the patient and you continue with a mixture containing 5% oxygen or a little more, 7% or 8%. If the patient does not relax, you repeat the secondary saturation again and again till the patient is finally subdued. This could only be done with a McKesson, not with the old Boyle which was too slow for such an emergency! Dr Lundy at the

Mayo Clinic asked me what I thought of secondary saturation and I told him the correct name for this procedure is 'Asphyxial shock'. It resembled the state of a boxer concussed by a knockout blow. I wouldn't call it anaesthesia."

"But the coming of Dr van Hoogstraten to Cape Town was a good thing. It helped to bring to the public the importance of good anaesthesia and turn this branch of medicine into a specialty which he practiced with great skill and distinction."

The anaesthetic staff at the Somerset Hospital increased with the arrival in 1923 of Dr RA Barlow and in 1924, Dr Jack Smith who was now in private practice in Tamboerskloof, Cape Town, was appointed honorary Anaesthetist to Dr B Fuller in the New Somerset Hospital. He joined Drs Daniell, Muir, Forbes and Berelowitz. No other appointments were made in the period 1921 – 1928.

Considerable discussion had taken place during 1921/22 between the Cape Hospital Board and the University of Cape Town regards the conditions upon which the site for the projected general hospital on the Groote Schuur Estate was to be leased to the Board. 'The University of Cape Town (Medical School) Act No 33 of 1920 enacts that after a grant has been made to the University of such portion of the Groote Schuur Estate as is referred to in sub-section (1) of Section 3 of the University of Cape Town Act, 1916, it shall be lawful to grant to the Cape Hospital Board a lease for a period of 99 years, at a rental not exceeding 1 pound per annum.'"⁸⁵

A draft lease was agreed upon on 12th May 1921. The Board undertook to erect a fully equipped hospital for sick people within 5 years of the commencement of the lease. The professors, lecturers and students of the University were to have access to the hospital for the purpose of and incidental to practical teaching in medicine and surgery.⁸⁶ During 1926/27 the protracted negotiations with regards the new hospital on the Groote Schuur Estate were satisfactorily concluded and on 5 July 1926, the lease was signed. This lease included - ...the hospital to be called 'The Somerset Hospital'. No further reference was made to this name.

As a matter of interest, the preparation of the site was to be done using convict labour, but in view of the prevailing unemployment, it was decided to use 'free labour'. This was done under supervision of the Public Works Department.⁸⁷ Building commenced in April 1927 and the hospital was designed for 640 beds at a cost of £750,000. During 1929/30 the hospital size was increased to 850 beds and it was now referred to as 'Groote Schuur Hospital'.

DR RICHARD ARCHIBALD BARLOW qualified MB ChB from the University of Glasgow in 1913 and subsequently in 1919 obtained the FRFPS while at the Faculty of Physicians and Surgeons of Glasgow. He practiced from Ashton, Kloof Road, Cape Town. He resigned from his post of honorary Anaesthetist in 1928 to take up a post as surgical registrar at the same hospital.

DR JACK SMITH born in 1900, qualified with the degree MB ChB from the University of Edinburgh in 1921 at the age of 21 years. Shortly after writing the 2nd year examinations, he was, owing to the shortage of doctors because of the war, obliged to administer anaesthetics in the Royal Infirmary, Edinburgh. After qualifying Dr Smith was appointed House Surgeon and Physician at the Greenock Infirmary, Scotland. He later worked with Dr Francis Brown who was Clinical Assistant to the gynaecological department at the Royal Infirmary, Edinburgh. After this he returned to Cape Town. After Dr Barnard Fuller's retirement, Dr Smith became honorary Anaesthetist to Professor EC Crichton at the Somerset Hospital and subsequently when the Groote Schuur Hospital was built, continued there. Along with this he was also appointed to the Peninsula Maternity Home and honorary Medical Officer and Anaesthetist at the Woodstock Hospital

Prior to the Groote Schuur Hospital being built, Jack, at the request of Ministers of all denominations, ran a free clinic in Salt River. Dr Smith retired from both general practice and anaesthetics in 1961. The correspondence to Dr Jack Smith from the husband of a patient dated 4 September 1958 is of interest to all anaesthetists in private practice. The problem he faced is still prevalent today, although anaesthesiology has come a long way since then and most people recognise the importance of this profession. Incidentally, the patient hailed from a wealthy, prominent family in Cape Town.

J. Smith,

M.B.,CH.B. (EDIN), D.A.,R.C.P.,R.C.S. (ENG)

PHONE 5-2347.

RESIDENCE:
"VREDE HOUSE"
187, LOWER MAIN RD
OBSERVATORY.
HOURS: 2-30-3-30 P.M.
7-8 P.M.

SURGERY:
"LIESBEEK HOUSE"
451, ALBERT ROAD,
SALT RIVER.
HOURS: 11-30-1, 8-8-30
(EXCEPT SUNDAYS & HOLIDAYS)

I was asked by Dr. M. Lipsitz to administer an Anaesthetic at the Booth Memorial Hospital for an emergency Caesarean to a Mrs [REDACTED] at midnight of the 3rd July 1957.

I put up a drip and attended to the resuscitation of the baby.

The inclusive fee was £7..7..

Accounts were rendered every month with no result. Finally I wrote a personal note on August 27th 1958.

On September 3rd 1958 Mr. [REDACTED] telephoned me and stated rather brusquely and rudely that " I dont know you, I didnt engage you and collect the money from the Surgeon. You can do what you like. Summons me."

J. Smith

$$\begin{array}{r} 4 \\ 9 \\ \hline 58 \end{array}$$

In 1924 there were 5 Resident Medical Officers covering all the fields in medicine at the Somerset Hospital and it was resolved to increase the staff to 8 at a salary of £100 per annum with board, lodging and laundry. There were no senior medical officers or registrars and chloroform and ether were the main agents being used. This was 'rag and bottle' anaesthesia. The number of students in anaesthesia varied from 2 in 1922 to 24 in 1923 and 19 in 1924. Dr Bampfylde Daniell kept a detailed register of instruction given to these. With the larger numbers, students were allocated in groups to Drs Bampfylde Daniell, Forbes, Muir and Berelowitz for clinical instruction. Once students had attended all the lectures and had completed the course, they were issued with a certificate which stated whether the instruction included gas or not.

In 1925, the fourth year medical student was required to administer twenty anaesthetics under supervision. They were taught to use ethyl chloride induction followed by straight ether on a Schimmelbusch mask or via a Shipway apparatus operated by hand bellows. Apart from the practical instruction in anaesthesia, fourth year medical students were given a course of twelve lectures on the theory and practice of anaesthesia.

The recommended texts in anaesthesia were:

Handbook of Anaesthetics by J Stuart Ross 1919
Anaesthetics in Practice and Theory by J Blomfield

The Handbook of Anaesthetics included chapters upon local and spinal anaesthesia as well as intratracheal anaesthesia. J Stuart Ross was a lecturer in anaesthetics at the University of Edinburgh. He maintained that the little book was an attempt to present to the student and practitioners a condensed account of modern anaesthetic views and practice. Emphasis was laid upon the relation of anaesthesia to general medical science rather than upon elaborate descriptions of anaesthetic apparatus and methods which would be superseded in a few years. A new edition of this handbook was reviewed by the *South African Medical Record* on 11 October 1924 as 'the best handbook on the subject we know whether for practitioners or students. The general practitioner requires nothing more'. Joseph Blomfield, OBE, MD was a senior anaesthetist and Lecturer on Anaesthetics at St. George's Hospital.

Although from the date of the First World War (1914-1918), tremendous advances were made in surgery and the demand for expert anaesthesia had outreached its supply, very little improvement had occurred academically in anaesthesia. Suddenly in the late twenties anaesthesia hit the headlines of the popular press, "Death on the operating table"⁸⁸ and it conjured in the mind of the public a fear of 'chloroform anaesthesia'.

Professor Harry Grant Whyte, a graduate of the University of Cape Town and who was the first Professor of Anaesthetics at the University of Natal, in a talk at the Conference of Medical Education in South Africa, held in Durban in July 1964⁸⁹ made mention of these 'lurid' headlines. These headlines eventually aroused Parliament to demand for legislative action.

"The legislative action took a decisive, and in some respects, an extraordinary form, appearing - to us in South Africa - as the well known Section 86 of the Medical, Dental and Pharmacy Act of 1928."⁹⁰

THE INQUESTS ACT

"The death of a person whilst under the influence of a general anaesthetic, or a local anaesthetic, or of which the administration of an anaesthetic has been a contributory cause, *shall not be deemed to be a death from natural causes* within the meaning of the Inquests Act of 1919 (Act No 12 of 1919), or the Births, Marriages, and Death Registration Act of 1923 (Act No 17 of 1923) or any amendment of these Acts.

"Designed to reduce mortality from anaesthetics, it served only to surround anaesthetists with serious legal dangers. It put the anaesthetist, as it were, on the spot, and it had, in effect, little influence on the mortality rate."⁹¹ The mortality rate was not known then nor is it even now! There was however, an attempt to establish it by a Government Commission headed by Dr AJ Orenstein.⁹²

In 1929 a number of posts were created at the Somerset Hospital for honorary Anaesthetists to special departments. These were filled by general practitioners Drs E Libermann (gynaecology and ENT), J Weinberg (ENT) and A Steytler (orthopaedics). In this year, Dr Eric Gordon van Hoogstraten, a graduate of the University of Cape Town returned to Cape Town and commenced private anaesthetic practice. In 1930 he was appointed honorary Anaesthetist to New Somerset Hospital and in 1932, a Clinical Lecturer

at the University of Cape Town. Eric was instrumental in introducing many new anaesthetic apparatus and techniques to South Africa.

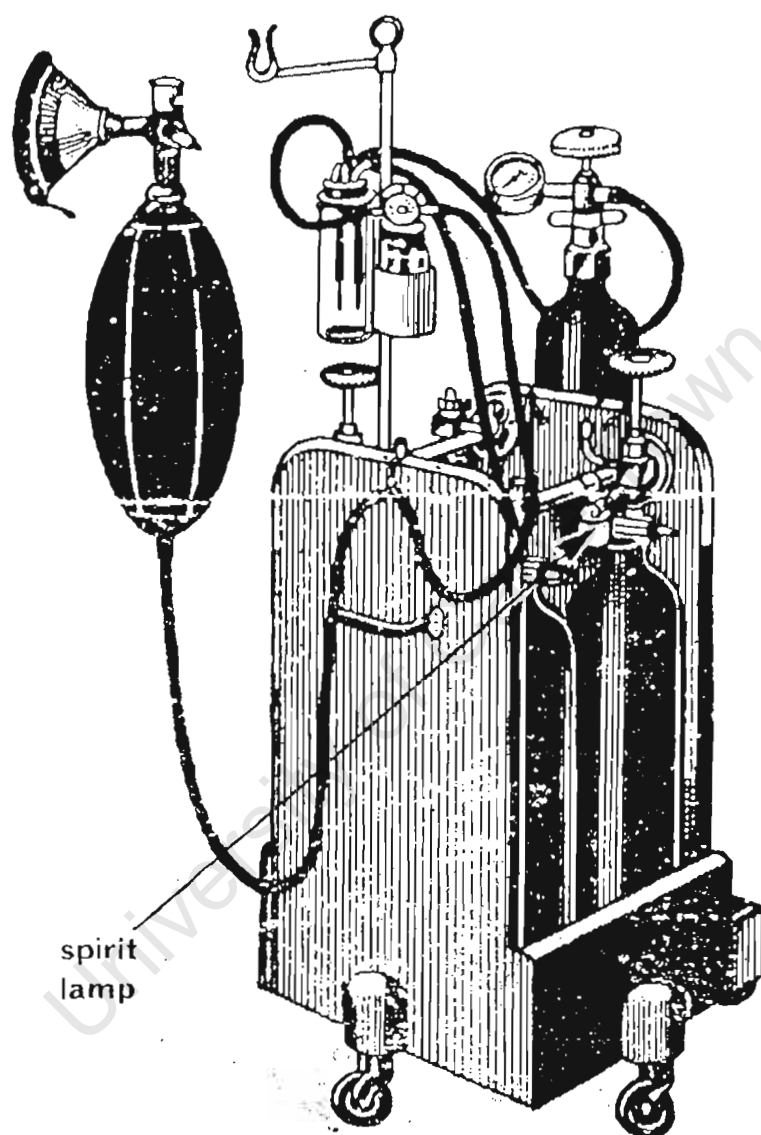
In these years, little changed in the staff complement except that Dr A Steytler was replaced by Dr EE Lazarus in 1932.

DR ERIC GORDON VAN HOOGSTRATEN ⁹³ was born in Potchefstroom in 1902. He matriculated at Rondebosch Boys High School, playing in the first rugby team and was an outstanding athlete. He qualified in Medicine at the University of Cape Town in 1927 and had the honour of representing his University at the annual Dalrymple Cup athletic meetings. Immediately hereafter, he left for England to specialize in anaesthetics and worked with some leading British personages in anaesthesia.

Dr Eric Gordon van Hoogstraten also gave us a glimpse of anaesthesia in those early years : “ My first contact with anaesthetics at the Somerset Hospital was in 1925, when as a fourth year medical student doing my dressership in surgery, I had to do 20 anaesthetics under supervision. Our lecturer was Dr Bampfylde Daniell, and my supervisors were Dr Berelowitz and Dr Jack Smith. We were taught to use C₂E₃ induction, followed by straight ether on an open mask, or via a Shipway motivated by hand bellows. I got a holy respect for the subject and hated it like poison! .”

He refers to Dr Berelowitz's prowess in endotracheal anaesthesia. “When an endotracheal was essential, as for excisions of the tongue for carcinoma – then a common operation – Dr Berelowitz was called in. He used a weird, primitive electrically driven compressor arrangement, fitted with multiple tubes and manometers to check the pressure in the lung. He passed two thin tubes, one for entry and the other for exit of the mixture. We all thought he was a mechanical wizard and would have nothing to do with the machine.”

Anaesthetic equipment was primitive or non existent at most hospitals. Supplies of compressed gases were difficult to obtain. Dr van Hoogstraten wrote “ There was an oxygen cylinder available in the



theatre but it had no pressure gauge or reducing valve. If it was not empty, it usually blew the Shipway apparatus to pieces when we tried to open the key. Operations often had to be stopped owing to patients ceasing to breathe, but there were remarkably few deaths from cardiac failure. Surgeons were terrors and despised their anaesthetists – I can still remember Professor Saint and his ‘tight as fiddle strings’.”

To add insult to injury, the anaesthetists of the day had to haul all their own equipment and heavy cylinders to the various hospitals which provided none. Dr van Hoogstraten left for London in 1929 where he found things much the same, even at the London Hospital and Guys. He continued, “ by a stroke of luck in my wanderings, I met Dr Elmer Isaac McKesson who was demonstrating with Dr FP de Caux his McKesson machine at the North Midlands Hospital. My eyes were opened and for the first time I saw pressure gauges, reducing valves and single large bore endotracheal tubes with gas and oxygen being fed directly and easily controlled into a water flowmeter triple bottle Boyle machine with plungers. Compared with my past experience, the results were so spectacular that I decided to become a specialist anaesthetist, especially after I had seen and learned the art of blind intubation from Dr Ivan Magill. On my return to Cape Town in 1930, I was appointed honorary Anaesthetist to the Somerset Hospital where, by now, Muir, Forbes and Hochschild were specialists and Berelowitz, Weinberg, Jack Smith and Ernest Liberman the GP help outs.”

From this last statement it is evident that there already existed a clear distinction between specialist and general practitioner anaesthetist. Dr Berelowitz, once on being queried on his status, took great delight in stating, “No, I am not a specialist, I am an expert.”

From these humble beginnings the Department of Anaesthetics at the University of Cape Town started developing.

DR GERALD HOCHSCHILD⁹⁴ mentioned above was born in Cape Town in 1900. He matriculated at South African College School and proceeded to London where he obtained the ‘conjoined’ MRCS (Eng.), LRCP (Lond.) in 1923. Early in his career he showed an interest in the art of Anaesthesia, then considered

the Cinderella of specialties and returned to Cape Town for a short period in the late 1920's where he practiced in association with Dr Algy Forbes. He returned to London in 1931, and obtained the Diploma in Anaesthetics in 1935, very shortly after the inception of this examination.

He was soon recognised in London as a first class anaesthetist, and had the privilege of holding honorary appointments at Queen's Square, University College, the London Chest and the Royal Northern. During the Second World War (1939-1945), he served in the Emergency Medical Services in London and returned to South Africa in 1946, where he commenced practice in Johannesburg. Shortly after his arrival, he associated himself very enthusiastically with the activities of the South African Society of Anaesthetists in its early and formative years, and played a very active role in its proceedings, both as a member of the Executive, and then as its President in 1951-52. Dr Hochschild was joined in practice by Dr Michael S Kramer in 1953.

He retired from active practice in South Africa in 1960, spent the following 7 or 8 years in Zambia combining farming and practising as GP anaesthetist at the Mufulira Copper Mines Organisation. Sadly he suffered slowly deteriorating health from the ravages of arteriosclerosis and died in 1971 at the age of 71 years.

Jack Abelsohn described him as a man, "gentle in demeanor, slow and deliberate in speech, manifesting an Old World Courtesy, a perfect gentleman, an excellent host, a popular, outstanding and respected colleague".

Thus it was that anaesthesia had progressed in Cape Town. It was Dr van Hoogstraten that was instrumental in introducing the gas and oxygen McKesson machine, the Boyle's apparatus with triple bottles and control taps "from reducing valves, which had hitherto been unknown and only rough control provided, which often proved a fiasco," the art of blind nasal intubation with single, wide bore rubber endotracheal tubes and continuous nasal dental gas and air. Up until then, two narrow endotracheal tubes

had been passed through the mouth, the one for introducing the gas into the lungs and the other for the exit of the gas.

Despite the disadvantages of nitrous oxide such as lack of potency, its inability to produce muscular relaxation, its narrow margin of anaesthesia, its tendency to be associated with implicit asphyxia or rather secondary saturation in the hands of the inexperienced, the necessity for expensive and more elaborate apparatus, and its cost, this gas, nevertheless, had many advantages when used with skill and discretion. It is non-explosive, non-toxic in the absence of asphyxia (bone marrow depression was discovered later), and provides rapid induction and recovery, with a relative absence of postoperative complications, although nausea and vomiting were by no means infrequent. It was the ideal anaesthetic for the ambulatory patient and for operations not stimulating vital structures, and where no muscular relaxation was required. For other operations its action could be supplemented with more powerful agents used in the correct proportion.

For this supplementation new drugs appeared on the scene. The year 1924, marked the beginning of intravenous anaesthesia as we know it today, for it was then that barbiturates were first introduced. Fredet and Perlis (1924) described the use of a combination of Veronal (Barbital; diethylbarbituric acid) and Dial (diallylbarbituric acid).⁹⁵ The first drug, however, to seriously attract international attention was Pernoxton Sodium in 1927. Two years later, in 1929, claims were made for the use of Avertin (tribromomethyl alcohol) rectally and intravenously, and satisfactory anaesthesia seems to have been so obtained (Kirschner 1929). In the same year Zerphas first introduced the intravenous use of Sodium Amytal, this drug gaining great popularity in the United States of America. But so far, all the drugs tried had produced severe and lasting depression, and often excessive postoperative restlessness when given in anaesthetic doses. It was not until 1932 that Weese produced Evipan (N-methyl-cyclohexenyl-methyl barbituric acid).

It was Dr van Hoogstraten that used Evipan for the first time at the Somerset Hospital early in 1932, from experimental ampoules he had received from Dr John S Lundy of the Mayo Clinic,⁹⁶ Rochester, Minnesota, USA. This was the first of the short acting barbiturates, the earliest of the drugs with which

anaesthesia could be safely produced by intravenous injection, without the untoward depression associated with drugs previously investigated.

At the Boston Anaesthetic Congress in 1934, Dr van Hoogstraten represented South African Anaesthetists. He then remained in the United States for a few months and worked under the tutorship of Drs Lundy, Tovell, McKesson, Clements, McCarthy, Waters and Rovenstine – established authorities in anaesthesia in those years. Dr Lundy, in 1935 produced further work with a newer drug, Pentothal Sodium, (sodium ethyl-thiobarbiturate) and made samples of this available to Dr van Hoogstraten, who once again, used it for the first time at the Somerset Hospital, along with Dr Jack Abelsohn on 13 August 1937.

Resident Medical Officers

As mentioned earlier, there were five resident medical officers at the Somerset Hospital until 1924. In that year, because of the increased workload, it was resolved to increase the staff to eight: four House Surgeons; two House Physicians; one House Surgeon for Casualty and Out Patients' department and one for special departments. These appointments were for a period of six months and the posts were open to female RMOs. As there were no senior medical officers all the emergency work and the administration of anaesthetics was done by these officers. Dr H Berelowitz was appointed Professor Saint's House Surgeon and later personal anaesthetist on 31 August 1920. In 1924 the RMOs were Drs Kenneth Frater, Pieter Roux, John Weinberg, Asher Asherson and Frank Forman. In 1928 Drs Francois D du Toit van Zijl, Marcus Cole Rous and Harry Grant-Whyte were the Housemen.

In 1928 a new post of Senior Resident Medical Officer was created at a salary of £150 per annum. The duties included administrative work, supervision of the Casualty Department and of dermatological and orthopaedic patients.

Eric A Walker in his 'History of the South African College and the University of Cape Town', eloquently put the transition of the College thus " In 1929 the University of Cape Town celebrated the

Centenary of the Old College and makes its great trek from the familiar headquarters among the oaks of the Mother City to the spacious magnificence of the mountain slopes which tower over Africa”.

University of Cape Town

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- 3 Laidler PW, Gelfand M. South Africa, its Medical History.
- 4 Burrows EH. A History of Medicine in South Africa.
- 5 Dr Samuel Silverthorn Bailey 1778-1864 was born at Malmesbury in Wiltshire, England. At the age of fifteen years he was apprenticed to a surgeon at the Manchester Infirmary and in 1800 entered the Royal Navy as an Assistant Surgeon. Thereafter he spent 13 years at sea, serving for a while on Lord Nelson's flagship. He visited the Cape on the *Astrea* and when he retired four years later, he returned to the Cape to be licensed to practise as surgeon and male-midwife by the Medical Committee in May 1814. See also Dr Samuel Silverthorne Bailey MD.RN by Dr Louis P Bosman. *Inyanga* 1932; August Vol I No 5: 5-8.
- 6 Lord Charles Henry Somerset was born in 1768. He entered the army and rose to Lieutenant-General in the Napoleonic Wars. He was appointed Governor of the Cape in succession to Sir James Cradock and arrived on 5 April 1814. His period of office was a stormy one and he resigned office in April 1827. He died in 1831.
- 7 Burrows EH A History of Medicine in South Africa. 108-109
- 8 Jacob Versveld. – son of William Ferdinand Versveld, "Gentleman of Wynberg", Cape – was the very first South African to qualify at the University of Edinburgh and return to the Cape to practise medicine. In 1822 Versveld enrolled at Glasgow University, where he spent two years and then obtained his MD degree.
- 9 Henry Bickersteth 1813-1862, arrived at the Cape as a nineteen year old medical student from the wards of St Thomas' Hospital, London in 1832. His association with the Somerset Hospital lasted till his death thirty years later, just a few days before the opening of the New Somerset Hospital. He was the Surgeon of the Hospital and a marble plaque was erected to his memory in the portals of the New Somerset Hospital.
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- 21 William John Dodds 1854-1939, arrived in the Colony in November 1889 and was immediately appointed 'Visitor of All Asylums'. When the Valkenburg Lunatic Asylum was established, partly through his efforts in 1891, Dr Dodds became the Medical Superintendent. He contributed much to medical education and to medical organization as he did in his own field of mental disease.
- 22 William Darley Hartley 1854-1934, devoted his life to organization of the medical profession in South Africa. For over thirty years he was 'the medical editor' in the country. He was a medical

- editor *par excellence* and while at Guy's, edited the *Guys Hospital Gazette*. In 1903 he founded in Cape Town the *South African Medical Record*. As late as 1878 Dr Hartley was to perform a Pigoroff amputation without anaesthetic on the buckboards of a wagon.
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- 28 Michell L. Life of Cecil John Rhodes.
- 29 Brookes EH. A History of the University of Natal. p.23
- 30 Alfred Beit was born in Hamburg in 1852 and was a capitalist and co-founder of Southern Rhodesia. In 1875 he came to Kimberley and made contact with Julius Wernher and with Cecil John Rhodes attained considerable prosperity as a diamond merchant. Returning to England he joined forces with Rhodes in his efforts to amalgamate the diamond mines, which resulted in the foundation of De Beers.
- 31 Murray, Bruce K. WITS the early years p.21
- 32 Sir Julius Charles Werhner was born in Darmstadt, Germany. Like Alfred Beit he took a post with Jules Porges in Paris. Porges sent him in 1871 as his representative to Kimberley. It was here that he was elected to the Mining Board and soon gained wealth and prominence.
- 33 Sir Otto John Beit was the younger brother of Alfred Beit. Born in Hamburg in 1865 he came to the Rand in 1890 as a member of the firm Herman Eckstein & Co. of the gold and diamond industry. After the death of his brother he devoted his efforts mostly to the development of the Rhodes Trust, the Beit Trust and other institutions, to which he gave large sums. He died in 1930.
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- 44 Wilson G. One Grand Chain p.23
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- 48 Duncum B. The Development of Inhalation Anaesthesia. Smee's Apparatus p.140
- 49 Henry Bickersteth 1813-1862. He was one of the most brilliant and most controversial medical figure of the Somerset era. During leave of absence he gained Membership of the Royal College of Surgeons and returned to duty in 1838. He subsequently became the Cape's first doctor to obtain the Fellowship of the Royal College of Surgeons, England. He was a Surgeon of the Hospital and a marble plaque was erected to his memory in the portals of the New Somerset Hospital. It commemorated his '*famam celebrem dotesque insignes...*' 'His death was a grievous loss to the profession and the people'. He contributed greatly to the tradition which established medicine as a scientific force at the Cape and which made the Somerset Hospital the scene of courageous experimentation and research.
- 50 Ludwig Gottlob Biccard (1775-1822) arrived at the Cape with the Batavians in 1803 as surgeon-major of the 9th Battalion of Jagers. He was the first doctor to be officially licensed to practise in South Africa. He was a member of the Supreme Medical Committee and gained prominence and respect as one of Cape Town's leading medical men.

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CHAPTER 2

THE DEVELOPMENT OF MEDICAL FACULTIES

By the year 1936, great strides had been taken in the development of the Medical Faculty of the University of Cape Town. There were now, departments of general surgery, urology, orthopaedics, ENT, obstetrics and gynaecology, plastic surgery (although in its infancy), ophthalmology, dental surgery, dermatology. The medical faculty had already established a diabetic clinic.

The rapid development of these departments necessitated expansion of the clinical areas for increased bed accommodation. The Cape Hospital Board was therefore instrumental in taking over existing hospitals, renovating them and opening new ones. One of the earliest, Buckingham Lodge, in Caledon Street, Cape Town which served as a maternity home, was hopelessly inadequate. The Cape Hospital Board acquired this property in 1928, renovated the Buckingham Lodge into nurses quarters and with renovations and new construction, opened the New Peninsula Maternity Home¹ on 28 January 1932; the Princess Alice Home of Recovery for Children² in Main Road, Retreat was opened by Her Royal Highness Princess Alice, Countess of Athlone on 14 February 1933; the Lady Michaelis Orthopaedic Home³ was offered to the Cape Hospital Board for maintenance and was reopened on 1 February 1933. This was meant for acute orthopaedic cases and was also equipped with an operating theatre. The St Monica's Maternity Home in Bree Street⁴ (Bo Kaap) Cape Town was already in existence and was enlarged modestly, to increase the number of beds to 18, in 1936.

Already in 1929, the New Somerset Hospital, which was equipped with 308 beds, was in reality accommodating 324 patients and the number of outpatients had increased to 52,000 per annum. It was as a result of this desperate situation that a decision was taken to build a new hospital on the Grooté Schuur estate and to minimise construction at the New Somerset Hospital to maintenance requirements only. Work on the new hospital started in 1929 and it was anticipated that it would be completed by 1937.

The controversial decision to house the Faculty of Medicine two kilometres away from the main Grooté Schuur campus was dictated by a prior agreement among the various authorities anxious to have a

much-needed new general hospital for Cape Town at the northernmost edge of the Groote Schuur estate, as close as possible to the populous suburbs of Salt River, Observatory and Mowbray.⁵

All this expansion necessitated the skills of experienced and trained anaesthetists. *Pari passu* with these developments, was the generation of medical organisation in this country, and this was in keeping abreast of similar development overseas. The South African Medical and Dental Council came into being in 1929, officially founded by an Act of Parliament, The Medical, Dental and Pharmacy Act No 13 of 1928.⁶ After the creation of the Union of South Africa in 1910, it was found necessary to consolidate existing health legislation under the Public Health Act of 1919, when 39 laws previously in force in the four Provinces were repealed. The corresponding bill to consolidate these laws, sixteen in number, in force in the various Provinces relating to medical practitioners and related professions was before Parliament for more than ten years before it finally became law in 1928. Act No 13 was later amended by Acts 2 of 1935, 5 of 1937, 41 of 1944, 45 of 1944, 30 of 1945 and 14 of 1946.

The function of this Council was to maintain standards of medical education and the ethics of medical practice. In the first ethical rules of the Council, recognition was made of specialists and consultants. Any registered medical practitioner could elect to practice any specialty provided he confined his work entirely to such a specialty. However, the response to specialization was considerable to such an extent that the rules of the Medical and Dental Council, relating to specialist practice, had to be extended to ensure the public received the services of properly trained persons. In 1936, it was required that a specialist should hold a higher degree⁷ in that subject as well as two years experience in general practice and two years experience in their specialty. This requirement was only made possible because of the institution of the first postgraduate examination in anaesthesia – the Diploma in Anaesthetics (DA), by the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England in 1935. (This was years later, in 1948, elevated to Fellowship status). Dr Gerald Hochschild was one of the first South African recipients of the DA of the Royal College of Physicians of London and the Royal College of Surgeons of England in 1935.

Under Rule 8, the additional requirements for registration of the specialty of Anaesthetics were:

- (i) That in addition to the practice prescribed, he has done advanced study in Anatomy, Physiology, Pathology and Psychology under academic supervision. Such study may be carried out concurrently with or separately from the clinical study of his specialty and certificates to the effect that he has devoted a minimum of one hundred hours to the advanced study of each of the subjects Anatomy, Physiology and Pathology, and thirty hours to the advanced study of Psychology, will be accepted as evidence that he has satisfied the requirements of this rule.
- (ii) That in addition thereto he has had six months training in the department of Medicine and six months in the department of Otorhino-laryngology in an approved hospital.
- (iii) That he has had two years satisfactory clinical experience as the holder of a clinical appointment under the control of the department of Anaesthetics in a teaching hospital.

Note: If a practitioner has held an appointment for two years or more in the department of Anaesthetics of an approved hospital, he may be given a maximum credit of 12 months specialist training.⁸

The Cape Hospital Board was cognizant of all these developments, the increased need for trained skills in anaesthesia and the recent additional requirements by the Medical and Dental Council of South Africa for specialization. The Board was also aware of deaths occurring in association with anaesthesia and dramatic newspaper headlines such as “Death after operation”; “Boy’s death under an anaesthetic. Distressing occurrence in Cape Town. Mother’s painful story”⁹; “Bronchial tubes blocked”; “Verdict on inquest....”; “Veteran succumbs under anaesthetic”¹⁰ were worrisome. The Board therefore instituted a new post – that of Resident Anaesthetist at the New Somerset Hospital. The post was for a duration of six months. The Resident Anaesthetist was required to administer anaesthetics for many of the routine operations and for the majority of the emergencies presented to him. In addition he had to teach and supervise both students and resident medical officers.

1936 The first Resident Anaesthetist to be appointed at the New Somerset Hospital was Dr Eva M Garabedien who qualified MB ChB at the University of Cape Town in 1932. She remained here for a few months only and was succeeded by Dr James Kleinman MB ChB (UCT) 1933

1937 Dr Jacob Nathan Abelsohn was appointed to this post after qualifying MB ChB (UCT) in 1934

1938 Dr Pearl Glatt who qualified MB ChB (UCT) 1931

1939 Dr Johanna SS (Hannah) van Niekerk (later to be Mrs CJB Muller – wife of the Professor of Radiology.) MB ChB (UCT) 1937

Until 1937 anaesthetics was still regarded as an ancillary sub-section under the aegis of the Department of Surgery and as Professor Bull mentioned “and from all accounts of surgeon-anaesthetist

relationships, it would appear that the surgeons were very conscious of the derivation of the word 'ancillary' from the Latin *ancilla* meaning housemaid; female servant or female slave."

FOUNDATION OF THE DEPARTMENT OF ANAESTHESIA

"Although anaesthesia at that time was still somewhat primitive, there was on the staff a small group of pioneers actively following in the footsteps of Dr Bampfylde-Daniell and laying the foundations for the future highly specialised science of anaesthesia". Events were soon to change, and in 1937 the efforts of these pioneers were rewarded when the University of Cape Town officially recognised a Department of Anaesthesia^{11, 12} by the appointment of Dr Alastair Gordon Forbes as "supervisor of the arrangements for clinical instruction in anaesthesia." While Clinical Lecturers had been appointed in the past, this was the first time that there was a Head of a Department in Anaesthesia. The Faculty of Medicine had been in existence for 25 years before Anaesthesia came to be recognised as an independent teaching department in the University in 1937.

At this stage, instruction in anaesthesia was given to the medical students in their fourth year¹³ and consisted of about 12 lectures on the 'theory and practice of general anaesthesia, including the following subjects: Properties of chief agents employed; their physiological action. The examination and preparation of patients. The administration of nitrous oxide, ether, chloroform, ether-chloroform mixtures and sequences. (apparatus will be shown in connection with the above). The selection of anaesthetics, sequences and methods in ordinary routine cases; the selection etc in particular cases (a) the state of the patient (b) the nature of the operation. The use of morphia and other alkaloids in conjunction with anaesthesia. Difficulties and dangers in connection with the administration; their causation, prevention and treatment. Shock in relation to anaesthetics. Practical instruction will be given in the operating theatres of the Somerset Hospital and the ear, nose and throat and dental departments of the Cape Town Free Dispensary¹⁴ in Buitenkant Street.¹⁵

The year 1938 is significant for the fact that Dr Algy Forbes was now *full time* Head of Anaesthesia at the University of Cape Town. Dr Forbes was the senior member amongst the anaesthetists at

this stage, Dr Bampfylde Daniell having retired from the New Somerset Hospital in 1923, at the age of 59 years. The staff complement of the Anaesthetic Department in the year 1938 was nine, composed of the following members:

Lecturers - full time	Drs A Gordon Forbes and Royden M Muir
Clinical Instructors	Drs H Berelowitz, Jack Smith ¹⁶ and EG van Hoogstraten
Honorary Anaesthetists	Drs EE Lazarus ¹⁷ El Liberman ¹⁸ and J Weinberg ¹⁹
Resident Anaesthetist	Dr Jack Abelsohn.

In addition to these, many anaesthetics including those for numerous emergencies, were administered by the resident medical officers as part of their overall duties. The volume of work left little time for research, but inspite of these tremendous odds, teachers like Drs Bampfylde Daniell, Royden Muir and Eric van Hoogstraten were able to conduct practical experimentation in a small way and publish articles on topics like 'Improved apparatus for the administration of warmed ether vapour' ^{p3}; 'the use of nitrous oxide and oxygen' ^{p5}; 'spinal anaesthesia' ^{p12}; 'the routine life and work of an anaesthetist in Cape Town' ^{p13} and 'notes on cyclopropane'. ^{p14} Teaching continued in a similar format as before, except that in 1939 each student was required to give a minimum of 10 (8 surgical and 2 dental) anaesthetics. A third book 'Practical Anaesthesia by the Anaesthetic staff of the Alfred Hospital, Melbourne, Australia' was recommended in addition to the Handbook of Practical Anaesthesia by Stuart Ross and Anaesthetics in Practice and Theory by J Blomfield. 'Students must complete their anaesthetic cases during the fourth year. A list will be posted up by the lecturer in anaesthetics, Dr A Gordon-Forbes. Teaching was now done at the Groote Schuur Hospital, ENT and Dental Departments of the Cape Town Free Dispensary and the Municipal Dental Clinic, Salt River.' ²⁰

The scope of surgery by this year had increased considerably and Professor Saint was preparing for the performance of ligation of patent ductus arteriosus and surgery for lobectomies, pneumonectomies and similar thoracic procedures. Dr Harry Berelowitz, his personal anaesthetist, with his ingenious, contrived contraption, managed to provide safe and suitable anaesthesia for these pioneering operations.

The posts created at the Somerset Hospital in 1929, for honorary anaesthetists to special departments, were now filled by general practitioners namely Drs. Ernest Isaac Liberman in gynaecology; John Weinberg in ENT and Alice Steytler²¹ in orthopaedics. Dr Gerry Hochschild was appointed in 1932 but left for England in 1935 and Dr Ernest Emanuel Lazarus replaced Dr Steytler in 1934.

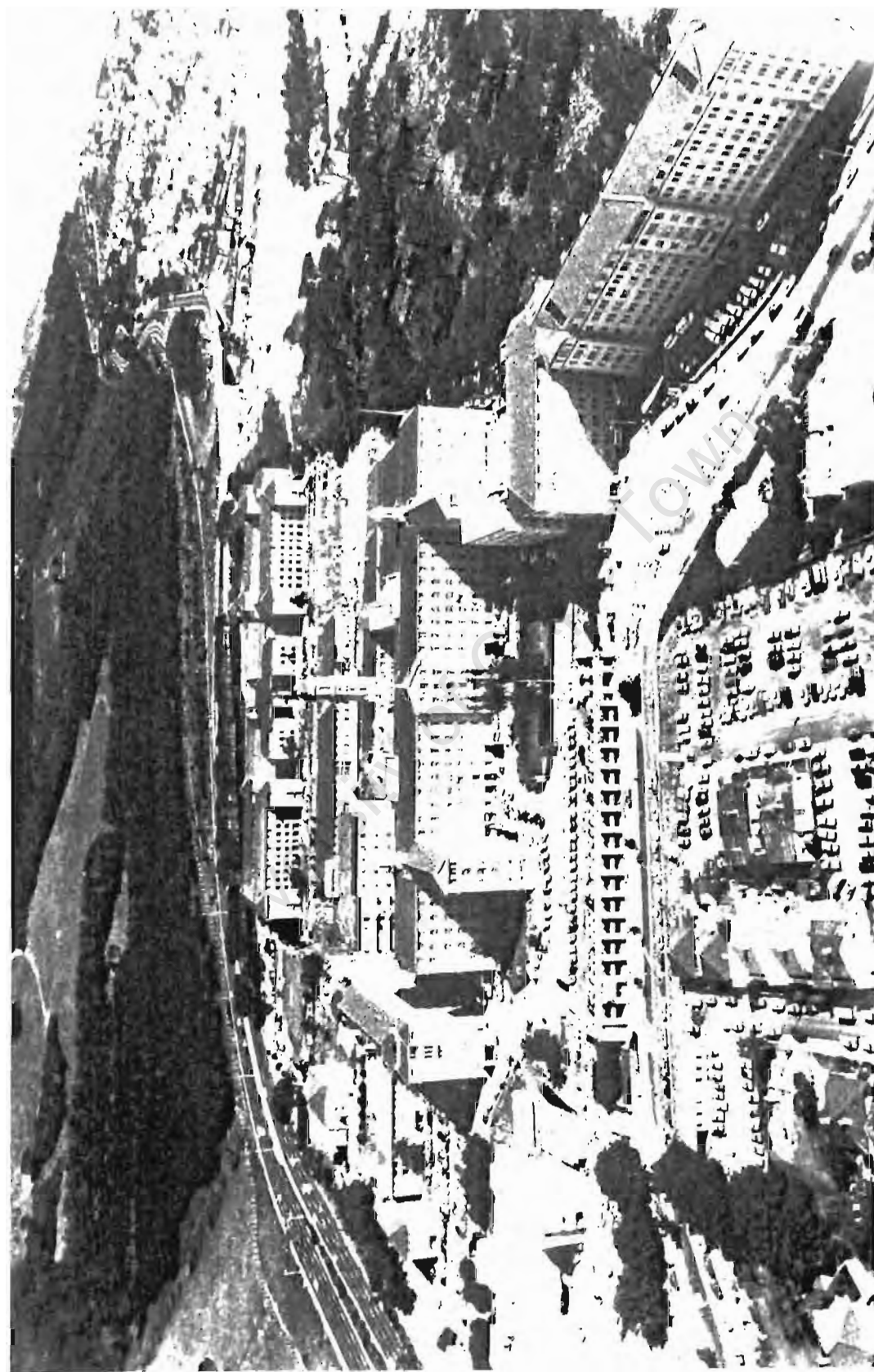
By 1938, the University of Cape Town was well settled at the Groote Schuur site. Of the nine faculties – arts, science, engineering, law, medicine, education, commerce, music and fine art and architecture – all but commerce, the Michaelis School of Fine Art²², the senior law classes and part of the School of Music were accommodated on the Groote Schuur estate.

GROOTE SCHUUR HOSPITAL

A major event of the year 1938 was the official opening of the Groote Schuur Hospital by His Excellency, Sir Patrick Duncan²³, Governor-General of the Union of South Africa, on Monday 31 January. While there was much jubilation and satisfaction over the opening of this large and modern teaching hospital, there were also rumours of the impending Second World War.

The new Groote Schuur Hospital was originally designed with accommodation for 640 beds at a cost of £750,000²⁴ but already it was said 'even this large institution will prove to be inadequate for the needs of the Cape'. These were prophetic words indeed. In 1929 the hospital size was increased to 850 beds and was hereafter called the Groote Schuur Hospital.²⁵ All the resident medical officers were now transferred from the New Somerset Hospital (in fact the new but now old Somerset Hospital built in the style of a castle as compared to the New Somerset of today which is situated next to it) to Groote Schuur Hospital.

The hospital was built at a cost of £850,000 not including the £150,000 for equipment. Built on the slopes of Devil's Peak, it had a magnificent view of the Cape Flats, the sea and the mountain. It consisted of a main six storeyed block with a wing for outpatients and several 20 bedded wards with balconies and a number of single rooms. However magnificent, and equally divided into white and non-



17 GROOTE SCHUUR HOSPITAL
with Out-patient Wing in foreground

white patient sections, there was no maternity section and no provision had been made for the casualty, orthopaedic and urology departments. This resulted in the next fifty years being spent on renovations, alterations and additions. From the anaesthetic point of view, there were 17 operating theatres and a modern X-ray department. On 3 February 1938, the New Somerset Hospital closed down and all patients and staff transferred to the new hospital .

Professor Jannie Louw made this comment ²⁶ “Among the senior surgeons there arose considerable competition as to who should be the first to operate in the new and modern theatres on the B floor. After some discussion ‘Mr X’ was elected to inaugurate the theatres with an operation on the hospital’s ‘opening’ day. All was set, a theatre was washed down and made ready, a patient was selected and the theatre staff alerted . However, as the hospital had been opened officially at midnight, it so happened that at about 03.00 am two emergency cases were brought in. The surgical registrar was called in and he decided that these cases required immediate operative treatment. He operated upon them that night in the magnificent theatre prepared for his august senior. The next day ‘Mr X’ arrived, prepared to cut the tape, when to his horror, he learnt that two operations had already been performed. He flung down his instruments (he had already scrubbed) and left the theatre in high dudgeon, not to return for three weeks. The junior was not penalised in any way, but spent a sleepless night not knowing what was going to happen to him.”

Anaesthesia for these cases had been administered by senior Resident Anaesthetist Dr Jack Abelsohn, who was the first to be appointed as such at Groote Schuur Hospital. Unfortunately the original theatre register could not be found by the hospital archivists. When this large and modern teaching hospital was opened, the teaching staff in the medical faculty had increased to 12 professors and 103 lecturers. There were 763 students.

WORLD WAR II

On 3 September 1939, twenty months after the opening of the Groote Schuur Hospital, World War II was declared. World War II brought a major political crisis to South Africa, General JBM Hertzog, the Prime Minister, refused to join Britain in breaking off relations with Germany and attempted to proclaim

neutrality of the Union. Parliament was split over the issue of neutrality or war and Hertzog's motion for neutrality was defeated by 80 votes to 67. Hertzog gave way to General JC Smuts. On 6 September 1939, South Africa joined forces with the rest of the Commonwealth and declared war on Germany. Its army consisted of volunteers only, totalling 345,049 ²⁷ and they fought in East Africa, North Africa and Italy making a magnificent contribution to the war effort. Many students and staff members of the University came forward to volunteer for active service. The University stood solidly behind its Chancellor who supported the enlistment of volunteer university members. The University Council decided that any full time member of the permanent staff who was granted leave of absence for approved national service, would have his post kept available for him and would be paid one fifth of his salary until his release from service. Dr Jack Abelsohn was one of the brave.

With the outbreak of the Second World War, Dr Lance Impey, who was Deputy Assistant Director of Medical Services (DADMS), Cape Command, asked Dr Jack Abelsohn to take charge of the Anaesthetic Department at the No 2 Military Hospital, Wynberg ²⁸, Cape Town. As Major Jack Abelsohn he not only provided an excellent anaesthetic service here but also started the training of many an anaesthetist, including Dr Arthur Bull, who subsequently was to hold the first Chair in Anaesthesia at the University of Cape Town. It would be expedient to dwell on some details about Jack.

JACOB NATHAN ABELSOHN

'Jack' Jacob Nathan Abelsohn ²⁹ was born in Cape Town in 1910. His parents had immigrated from Lithuania and he was one of six children, the third child and eldest son. He matriculated from SACS ³⁰ in 1927 and graduated MB ChB at the University of Cape Town in 1934. His career in anaesthetics started at the New Somerset Hospital when he was appointed Resident Anaesthetist in 1937.

In association with Dr Eric G van Hoogstraten, he administered the first Sodium Pentothal ³¹ anaesthetic at the New Somerset Hospital on 13 August 1937. It was in the same year that Jack survived an ether explosion at this hospital.



18 Major Jack Abelson

Ether explosion

Let us recount the episode. It was a hot and oppressive summer's day, the temperature recorded at the Royal Observatory was 80°F (26.6°C) and the relative humidity 70; the theatre was poorly ventilated and the temperature inside being well above 80°F. They were engaged on their sixth tonsillectomy, the patient being induced with ethyl chloride, followed by ether on the open mask, and the anaesthetic maintained via the Shipway Apparatus.

The explosion occurred with dramatic suddenness just as the surgeon was about to commence the operation: the flame appeared to have travelled along the tube leading to the Shipway Apparatus, which caught alight and blew up with a roar that shook the old fashioned turrets of the New Somerset Hospital (1856) to its very foundations. The patient was unharmed but Jack had been concussed by the blast and received a 5cm gash from glass which embedded in his scalp. The cause – overheating and an electrical short circuit in the surgeon's mirror headlamp.

A further explosion occurred in 1954, in the B2 theatre when a maxillo-facial procedure, the resection of the tongue for a lingual tumour, was in progress. Dr JD (Blaar) Carstens was the anaesthetist and Eric Malherbe the surgeon. The anaesthetic consisted of ether, Trilene³² and a Boyle's machine³³. The patient had been intubated and a throat pack inserted. The surgeon then requested permission to make use of the diathermy, at which stage the ether was turned off and Trilene switched on and the anaesthetist was happy for them to continue. Unfortunately, unbeknown to them, the ether bottle had leaked and an explosion occurred. The ether bottle broke, the rebreathing bag ruptured (the patient's lungs were obviously tougher than the bag) and the floor nurse received a fragment of glass in the leg. The patient was transferred to Dr Ozinsky's theatre next door and the surgery continued. Surprisingly, the patient came to no harm!

With the institution of the Diploma in Anaesthetics by public examination and the recognition of the specialty by the Royal College of Surgeons in England in 1935, Jack decided that he had to further his career. He travelled to England, and obtained the conjoint DARC and RCS in 1938.

Some Examinations in Anaesthesiology

Prepared by Dr John Zorab

Date	Qualification	Granted by
1933	ChM (for anaesthetic topic)	University of Cape Town
1935	DA (London)	RCS (England) & RCP (London)
1937	Board Certified	American Board of Anesthesiology
1948	2-part DA	Faculty of Anaesth. RCS (England)
1951	FRCPC (Anaesth)	RCP & S (Canada)
1953	FFARCS	Faculty of Anaesth. RCS (England)
1956	FFARACS	Faculty of Anaesth. RCS (Australia)
1959	FFA (SA)	Faculty of Anaesth. Coll Med. (S Africa)
1961	FFARCSI	Faculty of Anaesth. RCS (Ireland)
1985	DEAA	European Academy of Anaesthesiology

As a Founder Member of the South African Society of Anaesthetists in 1943, he served this body with distinction, was a member of the Executive for many years and also served as its President in the years 1952-53.³⁴ Jack was a man of boundless energy, a man of many interests, a man who gave freely of himself and of his money. In later years he left full time practice and was in partnership with Drs Norman Smiedt,³⁵ Peter Jenkin³⁶ and Jack Levin³⁷, but this was dissolved in December 1966 and Jack continued in solus practice, maintaining his association with Groote Schuur Hospital and Victoria Hospital³⁸ as a part time consultant up to two days prior to his death.

His wide range of interests was not confined to anaesthesia; he loved living at the Cape and indulged himself in bathing in the sea and taking long walks along the beach. Over the years he assembled a fine collection of paintings, including Thomas Bowler prints and was keen on old pewter. From 1964 Jack had suffered from complete heartblock and had a pacemaker inserted and was prescribed a multitude of drugs. In April 1976, following a bout of pulmonary oedema, he was admitted to the Groote Schuur Cardiac Unit for investigation. During cardiac catheterization, he suddenly developed a cardiac arrest which lasted for forty five seconds. He was successfully resuscitated and lived to tell his tale.

“When the circulation had returned and I slowly regained consciousness, a truly bizarre, psychic phenomenon occurred – one that I can never forget, and one which I feel singularly fortunate and profoundly grateful in having been able to return from ‘The Land of no return’, a privilege not granted to many.”

“My first conscious recollection after the circulation had obviously restarted., was that I vaguely felt heavy pressure exerted on my chest, and simultaneously whilst still lying on my back, I became aware of two semi-circular rows of figures, seemingly suspended in mid-air, the second row interspersed just behind and between the first row; the background was black.”

“These figures were very tall and gaunt, dressed in glimmering white attire from head to feet, hooded, and with slits where the eyes should be. A glorious halo of golden light appeared to be shining

directly on to these figures from somewhere above and to the right of me, bringing them into a clear visionary focus; the background was intensely black. These figures were indefinable as regards their sex. And I must disappoint my readers by confessing that I was unable to detect any wings on them!”

“I was conscious of some objects over my face; they turned out to be an oxygen mask, and ice packs being applied to my perspiring forehead. In the far distance, I thought I heard a faint voice asking, ‘are you feeling better now, Dr Abelsohn?’ The voice was that of Professor Walter (Wally) Beck ³⁹ who had carried out the catheterization, and he was standing at my side. I developed an intense polyuria, accompanied by an intense thirst, and begged to be given a cold drink. Iced ‘Oros’ ⁴⁰ was handed to me, which I sucked through a straw, and this brought some measure of relief from the agonies of my indescribable thirst. Everything appeared to be hazy and blurred; I felt muzzy, and the voices around were distant and indistinct.”

“Suddenly, as if in a flash, I remembered where I was, and what was being done. I recognised the medical staff on my right side, and the theatre sisters and radiographers to my left; they subsequently told me that I had become restless and muttered, ‘What happened? I must have dropped off’. Incidentally, the medical and nursing personnel were all attired in green and not white gowns. By about 4 pm I had regained clarity of my faculties, and was able to converse with the numerous members of the staff who had called to see me. I realized that in actual fact, I had returned from a brief hurried visit of some forty five seconds to the ‘Land of no return’. ‘The undiscovered country, from whose bourne no traveller returns’. Hamlet, Act 3 Scene 1. I had fortunately, but very fortunately taken a return ticket with me!” ⁴¹

After a prolonged period of cardiac disability, Jack died on 2 November 1979.

During the period 1938 to 1950 the Medical School passed through troublesome, momentous, exciting and promising times. Despite the war, while many staff and student members had left to join active service, the number of students in the medical faculty had actually increased. This was as a direct result of the University encouraging students to register, so as to provide a sufficient number of doctors for the

armed forces as well as for the public. By 1944 ex-servicemen started to return. This swelled the number of medical students to 1061 in 1948, of whom 295 were ex servicemen.

By the 1 January 1939, the number of anaesthetic specialists listed in the South African Medical & Dental Register amounted to only 10 in the country. These were:

Barlow, Miriam Brereton
Becker, Cyril Charles
Crawford, David
Dyke, Ronald Andre Moore
Fisher, Morris
Hoffman, Samuel
Lipron, Sam
Scott, James Duff
Van der Post, Christiaan Willem Hendrik
Van Hoogstraten, Eric Gordon.

In 1940 they were joined by:
Feldman, David
Geffen, Samuel Michael
Muir, Royden McIntosh
Weinbren, Benjamin

In 1941 by:
Abelsohn, Jacob Nathan
Forbes, Alastair Gordon

And in 1942:
Fuller, Thomas Arthur
Grant-Whyte, Harry
Siff, Isadore.

There was thus an urgent need to increase the number of anaesthetists as well as other doctors.. To cope with this, student numbers were increased and it became necessary to augment the teaching staff considerably. However, because of a lack of funds, posts were not available. Since the institution of clinical teaching in 1920, ⁴² the University had depended upon honorary medical staff employed by the Cape Hospital Board at the teaching hospitals, for much of the clinical instruction to students. “ The University certainly could not afford to remunerate them for patient care, nor could the Hospital Board. Full time clinical post were at a premium and the Clinical Professors who were primarily University employees, were permitted private practice ‘after hours’ to supplement their salaries.

The rest of the preclinical staff were employed mainly on a full time basis by the University. With the advent of the post-war classes consisting up to 200 students in each clinical year, the situation became intolerable. Not only was the staff hopelessly inadequate for undergraduate teaching but postgraduate training and research activities suffered greatly.⁴³ Fortunately, relief was around the corner, for by this time there had arisen in government circles an awareness of the gravity of the situation.”

THE JOINT AGREEMENT⁴⁴

Soon after the war had ended (in 1945), the *Cape Provincial Ordinance No 18 of 1946* was promulgated. In terms of this ordinance the Cape Provincial Administration⁴⁵ was to take over the direct administration of hospitals from the Cape Hospital Board as from 1 January 1950. This change promised government assistance for a larger number of clinical posts, coming at a time when these were needed most. Also, at the end of June 1946, all temporary and acting posts were terminated and these posts as well as several newly created ones, were designated as *permanent*. As a result of this, by the end of 1949, the faculty staff numbered 12 professors, one associate professor and 161 lecturers. The 27 additional posts consisted of 10 lecturers and 17 junior lecturers or registrars. Unfortunately, the University did not possess the means to reimburse all these additional staff. They therefore approached the Cape Hospital Board in 1948 about reaching an agreement with the Provincial Administration in regard to the organisation and remuneration of the clinical staff.

The Administrator in turn, appointed a *Commission of Inquiry*, to investigate the staffing requirements and organisation of the University Teaching Hospitals. Their findings were that ‘the staffing was inadequate and that there was too much dependence upon services rendered by the medical staff on an honorary basis.’ As a result of this, *The Joint Agreement* between the University of Cape Town and the Cape Provincial Administration was signed on 19 December 1951 and made retrospective from 1 June of that year. In terms of the agreement both bodies would contribute towards staff salaries, the University would be responsible for teaching and research and the Provincial Administration for patient care. This made it possible to appoint many full time as well as part time staff members on reasonable salaries and to provide facilities for expansion and the development of specialised departments and clinics.

It was primarily as a result of this agreement that the Department of Anaesthesia at the University of Cape Town, was able to conduct all the research it did and develop to the extent that it is today. "The true academic growth of the Department of Anaesthesia can be said to have started in 1950 with the Joint Agreement."⁴⁶

In 1940 Dr Thomas Arthur Fuller, who was previously in general practice and an honorary Visiting Physician at the New Somerset Hospital, joined the Department of Anaesthesia as an honorary Instructor. A few years prior to this, he became unhappy with his branch of medicine, and devoted more time to anaesthetics. In 1937 he proceeded to London to specialize in anaesthetics, returning to Cape Town in 1939. With the sudden death of Dr A Gordon Forbes at the age of 55 years in 1941, Dr Fuller was appointed *part time* Senior Lecturer in Anaesthetics at UCT. On 1 January 1948 he accepted this appointment in a *full time* capacity and in 1951 was appointed Head of the Department of Anaesthesia at the Groote Schuur Hospital, where he was instrumental in laying the foundations of a very efficient department.

Until 1940 there was a minimal change in staff. While Dr AG Forbes was Head of the Department, Doctors Royden Muir (anaesthetist to Drs L Goldschmidt⁴⁷ and RWM Frater⁴⁸ and Eric van Hoogstraten (anaesthetist to Dr TL Sandes⁴⁹) were the other specialists (part time) on the staff. Drs H Berelowitz (anaesthetist to Professor Saint) and Jack Smith (anaesthetist to Professor Crichton⁵⁰) were regarded as specialists but were in fact, part time general practitioner anaesthetists. The other GP anaesthetists were Dr Jack Weinberg (for Dr Luckhoff⁵¹), who resigned in 1942, Dr EE Lazarus (for Dr P Roux⁵²), who resigned in 1938 and Dr Phillip Saltman⁵³ (for Dr George Sacks⁵⁴), who joined in 1939. Dr Jack Abelsohn was the full time Resident Anaesthetist since 1937.

In 1947, after the resignation of Dr Royden Muir, who went into private practice, Dr JU Human⁵⁵ joined the Department but he died under tragic circumstances at the end of 1948. He had been suffering from an abdominal carcinoma. Until that time, the Department had been carried entirely by the part timers – Drs Fuller, Muir, van Hoogstraten, Berelowitz, Smith and Saltman and a single Resident Anaesthetist. Dr

Jack Abelsohn had volunteered for active service and was granted special leave of absence by the University and the Cape Hospital Board.

The events which led up to the *Joint Agreement* of 1951, resulted in a progressive increase in the number of hospital staff as well as the creation of a number of full time posts. The first increase was in July 1946, when a large number of ex-servicemen were appointed. In this year the additional visiting anaesthetists were, Drs Johanna van Niekerk,⁵⁶ Shirley Cole⁵⁷ and Lindsay van der Spuy.⁵⁸

The other members were, Arthur B Bull and John H Bam,⁵⁹ who along with Lindsay van der Spuy, were seconded to No 2 Military Hospital in Wynberg, Cape under Major Jack Abelsohn, during their service in the South African Medical Corps in the Second World War. It was during this experience that their interest in anaesthetics started.

The post-war ex-volunteer tide reaching the clinical years in the late 1940s created a dilution in small bed-side teaching, to the detriment of students. A committee charged with examining problems at Groote Schuur Hospital in 1948 concluded: "There is...an undoubted and widespread feeling amongst those serving the hospital that honorary service had reached its breaking point... the multiplicity of honorary staff, each spending only a relatively small amount of his time in the hospital has occasioned a failure of the desired continuity in the teaching...." Neither the UCT nor the Provincial Administration disagreed with this finding and between them they began to map out a system to staff the teaching hospitals with salaried doctors obliged to spend a fixed amount of time per week in the wards diagnosing, treating and teaching. As both bodies would contribute to the salaries, this opened the way for a significant increase in teaching staff.⁶⁰

During 1950 further appointments were made, including the first full time clinical professor of surgery – Professor JFP Erasmus⁶¹, an ex-serviceman, who was appointed to the Chair of Surgery. The staff at the end of 1950 totalled 181, consisting of 12 professors, 1 associate professor, 128 part time honorary lecturers and tutors, 23 full time lecturers and 17 full time assistant lecturers, tutors and registrars

at the Medical School of the University of Cape Town. 1950 was also the last year of honorary appointments.

The members now in anaesthetics were :

Full time Lecturer	TA Fuller
Full time Assistant Lecturers	EB Hacking, PS Jenkin
Part time Assistant Lecturers	H Berelowitz, EG van Hoogstraten, J Abelsohn, NC Smiedt and L van der Spuy
Part time GP Anaesthetists	J Smith, S Cole, PBL Saltman, JA Koch
Full time Registrars	AB Bull, JD Carstens, GG Hendersen, E Shearing (Hacking)

The early years

Arthur Barclay Bull, who subsequently was the first incumbent of the Chair in Anaesthesia at the University of Cape Town described his experiences :

“Having spent three years in general practice after the war, I decided to opt for specialization in anaesthesia. At that time, in 1948, there was no training facility locally, so I applied for a post at Groote Schuur Hospital in the hope and understanding that , at least, one could get some guidance and experience under supervision. In October 1948 I was accepted to the post of Medical Officer at Groote Schuur Hospital. In this period Dr TA (Tom) Fuller held the position of Lecturer and Clinical Instructor, assisted by Drs Edgar Hacking and Peter Jenkin, who were the only two full time staff members to hold a higher diploma in anaesthetics.”

“By today’s standards, conditions then were primitive. There was no piped gas and one seemed to be constantly changing cylinders with badly maintained screw threads and spanners which frequently seemed to migrate to places unknown when required. Laryngoscopes were a luxury, which often had to be ‘booked’ for the use thereof, in advance. Nasal endotracheal tubes were available (the red rubber type) and were often in an advanced stage of perishment. Cuffed tubes were almost unknown. On the insistence of Peter Jenkin and Edgar Hacking,⁶² a move was made to improve this situation and over the next year or so, laryngoscopes were provided. Authority for piped gases was also obtained, but the supply of endotracheal tubes remained problematical and since the introduction of muscle relaxants, something had

to be done. Initially, throat packs were used to provide a reasonably tight fit round uncuffed tubes and the recommended practice was to moisten the throat pack with water and liquid paraffin. It was soon brought to our attention that this sometimes resulted in '*paraffinomas*' in the lung, so an alternative was looked for. Someone, I do not remember who, had the bright idea of cementing condoms onto plain tubes, using fine catheters as inflating tubes thus making cuffed tubes and what is more – had not realised at that time, - making what was probably the first *low pressure* cuffed tubes.

At odd moments one could see enthusiastic anaesthetists with a tube of 'Dunlop' rubber puncture solution and a few endotracheal tubes and condoms busily at work on cuffed tubes for the next operation list !"

" Dr Fuller who was appointed full time Lecturer and Clinical Instructor in anaesthetics in January 1948, had a warm and personal interest in the Department and its members, and though an anaesthetist of 'the old school', encouraged and took an active part in introducing newer anaesthetic methods then filtering through from Britain. Dr Hacking was of the post-war generation of anaesthetists, having received his training in England. 'Hack' as he was known in the Department, left an indelible impression on those who came into contact with him. Although in times of stress his words were hampered by his stutter, they nevertheless made an impact. He spared no effort to convince surgeons that the anaesthetist was a colleague, whose place as a member of the surgical team deserved respect and consideration. He held the view that if the surgeon was Captain of the ship, then the Anaesthetist was the pilot. His firm stand on the question of surgeon-anaesthetist relationship was undoubtedly the beginning of a changed outlook towards anaesthetists and anaesthetics by many surgeons, though it often led to bitter and heated arguments in the operating theatres and the corridors outside them. To onlookers, it was often refreshing to see surgeons, who had for so long been able to overawe and dominate the anaesthetists and to insult and badger them at will, reduced to a state of shaking, impotent rage by Hack's unyielding stand – one which the part time anaesthetist was in no position to take, for he was dependent on the surgeon for his livelihood." Dr Hacking resigned from full time service in 1951 and started in private practice. More about Dr Hacking.

EDGAR BOLTON HACKING

MBE, FFA RCS, MRCS (Eng) LRCP (Lond) MA, MBBCh (Camb) DA RCP RCS (Eng)

Dr The Honorable Edgar Bolton Hacking MBE was born on 31 May 1912 at Rishton, Lancashire, England. He schooled at Charterhouse, thereafter Clare College, and Trinity Hall, Cambridge, where he excelled not only academically but also as a sportsman of prowess, particularly in football. He qualified MRCS LRCP in 1936; MA MBBCh (Camb) in 1938; DA RCP RCS in 1946 and FFARCS (Eng) in 1954.

His studies were interrupted by the Second World War. A man with a distinguished career, he served as Special Constable in the London Metropolitan Police Reserve during 1932-35. From 1935-1939 he was commissioned in the Territorial Army, appointed as Regimental Medical Officer to Queen's Westminster Rifles. Later he was Senior Medical Liaison Officer with the Polish Brigade under General Kaponiski. From 1940-1944 he served in the Middle East Forces in the Fourth Indian Division where he was appointed Commanding Officer of the 14th Light Mobile casualty clearing station. He also took part in the Syrian Campaign with the Free French Force in the Field Surgical Unit. He used his medical skills very ably and courageously both in front and behind enemy lines. He was awarded an MBE (Military) for gallantry in action in the Western Desert Campaign.

He came to South Africa in 1946, being at that time one of only a few specialist anaesthetists in the country. He was appointed Senior Specialist at Groote Schuur Hospital and was deputy to the Head Dr Tom Fuller. It was here that Edgar was also instrumental in laying the foundations for the formation of an anaesthetic department, a concept which encountered much opposition from the surgeons.

He propagated and instigated the view that the anaesthetist and the surgeon are equal members of the operating theatre team. He advocated that the specialist anaesthetist should have a detailed knowledge of the history of anaesthesia so that he may realize with humility that the dogma of the present is the fallacy of the future, and that the Holy Grail of anaesthesia is still just a blurred and unattainable dream. He should learn to repeat the aphorisms of Dr Hutchinson:

“Be not the first by whom the new is tried nor yet the last by whom the old is cast aside”.

In July 1950 he married Dr Eva Shearing ⁶³, who was then a registrar in the Department. In 1961 he moved to Tasmania where he was Director of Anaesthetics. Here also, he encountered vehement opposition to this concept of a separate department. From 1962-1966 he was in private practice in Perth, Western Australia. Edgar retired in 1989 at the ripe age of 77 years, having practised for 44 years.

Gaisford Harrison recalls a small example of Edgar’s dry wit which occurred when as a 5th year student he was assigned to Hacking’s list. The patient was a plump short-necked lady presenting for cholecystectomy. Following induction of anaesthesia with thiopentone, gas, oxygen and ether with spontaneous respiration, Edgar was greatly frustrated when his several attempts at intubation failed. Mucus flowed freely, the sucker was in continuous use and Edgar’s face became redder and redder. Enter a jovial Uncle Tom. “Whats the problem, Edgar? Mind if I try?”. Edgar’s muttered assent was followed by Uncle Tom performing a sleight-of-hand blind nasal intubation. Exit Uncle Tom with a self satisfied “There you are”. Naïve student Harrison, genuinely interested, enquires innocently “Tell me Dr Hacking, why could you not intubate this patient ?” Came the reply “Mr HaHaHarrison, when a man fluffs his shot at golf, you do not ask him WHY?? !”

Edgar was loved and respected by his colleagues. Noted for his command of the English language, he was at ease with the classics and said grace in Latin. He possessed a quick wit and a spontaneous turn of phrase. He died on 1 December 1998 aged 86 years, following a massive myocardial infarction. ⁶⁴

The third of the original three full time members of the Department of Anaesthesia, Dr Peter S Jenkin, had joined the staff of the hospital in 1947, having previously spent six months as a resident anaesthetist at Groote Schuur Hospital in 1943. At this time, aspiring anaesthetists in South Africa suffered the frustration of interest in a rapidly developing specialty, with scant facilities for teaching or guidance. The *art* of anaesthesia was being replaced by the *science* of anaesthesia, expounded by the British and American schools, whose influence reached South Africa only by the written word. The young anaesthetist was largely self taught, and opportunity for first-hand contact with the multitude of newer developments

had to be sought overseas, or from too brief encounters with anaesthetists in private practice who did a few sessions at the hospital. No higher qualification for the specialist registration was obtainable in this country. Dr Jenkin, therefore, in 1950, decided to go to England to measure his knowledge acquired in Cape Town against the examiners for the Diploma in Anaesthesia of the Royal Colleges of Physicians and Surgeons, England. In this he was successful and returned to full time service in the Department later that year, bringing back with him a wealth of knowledge and techniques. This served as a strong stimulus to others to do likewise.

By 1950, anaesthesia had much improved. Ether, nitrous oxide and ethyl chloride which were the mainstay in anaesthesia in 1938, were gradually replaced by newer and better drugs. As mentioned earlier, intravenous barbiturates and Sodium Evipan were now in use at Groote Schuur Hospital, muscle relaxants arrived in 1942⁶⁵ and were improved in 1946, and at the same time hypotensive⁶⁶ and hypothermic techniques were being introduced. Each theatre had been equipped with a gas and oxygen machine and the Coxeter Bobbin type of flowmeter.⁶⁷ The old Shipways were at long last discarded; the students and resident house surgeons were now being taught to administer gas and oxygen both for induction and maintenance of anaesthesia. Dr Fuller as the full time Senior Lecturer in Anaesthetics, felt that the needs of anaesthesia would best be served by the employment of anaesthetists in a *full time* capacity.

The scenario described above was not unique to South Africa. In fact they were a few years ahead of their colleagues down under. Dr Bruce Morison who arrived in Canberra, Australia in 1960 as the first full time specialist anaesthetist wrote :⁶⁸

“Anaesthetics as a specialty began in Canberra Hospital with my arrival in 1960. The practice of anaesthesia was out of date due principally to a lack of basic equipment. There were no ventilators or modern anaesthetic machines outside the main operating theatre even though anaesthetics were administered all over the hospital (in obstetrics, in casualty for reduction of fractures, for electro-convulsive therapy etc). There was no monitoring equipment nor intensive care; there was little evidence of intubation and no neonatal intubation at all. Despite apathy on the part of the hospital but with the encouragement of colleagues, an effective system of anaesthesia has gradually evolved; what began as a recovery ward

developed into an excellent Intensive Care Unit with Pat Brown as charge sister. A modern comprehensive Department has now emerged since my retirement in 1990.”

Uncle Tom was well versed in his specialty, soundly conservative yet fully appreciative and cognisant of the rapid advances which were being made in the speciality during this period. He taught his students to administer a safe anaesthetic. As Head of the Department of Anaesthesia at the Groote Schuur Hospital he was instrumental in further laying the foundations of the very efficient Department which he was able to hand over to his successor Dr CS Jones in 1953.⁶⁹

Dr Bull continued, “In 1950 Drs Tom Fuller, Edgar Hacking DA RCP(Lond) RCS(Eng), Peter Jenkin DA RCP(Lond) RCS(Eng), Gordon Henderson DA (Wits), ‘Blaar’ Carstens, Eva Shearing and myself were on the full time staff. Of them, only 3 held a Diploma in Anaesthetics. There were in addition, 5 part time registered specialists and 4 general practitioners who did occasional sessions.”

This was a time of rapid expansion in all the surgical disciplines, particularly general surgery and obstetrics and gynaecology. Demand for anaesthetic services far outstripped the available manpower and with this went also the demand to cope with ever more complex and major procedures. Neurosurgery and thoracic surgery were still in their formative years. The first part time neurosurgeon appointed was Dr H de Villiers Hammann⁷⁰ who filled the post of neurosurgical registrar, a post which was newly created in March 1948. This was upgraded to that of honorary Neurosurgeon in 1949. In thoracics, a new post of honorary Thoracic Surgeon was created in 1948 and this was filled by registered Thoracic Surgeon Dr Walter L Phillips. Dr Phillips had trained at the Brompton and Harefield Hospitals and was the first thoracic surgeon to settle in South Africa. Thoracic surgery, still in its infancy, revolved mainly around pulmonary surgery (mostly tuberculosis), ligation of patent ductus arteriosus, excision of coarctation of the aorta and pericardectomies. Both these specialties had to struggle for theatre time and ward space, relying on goodwill from the general surgeons and gynaecologists both for beds and theatre time.



AG Forbes



TA Fuller



H Berelowitz



RM Muir



G Hochschild



EG van Hoogstraten



EB Hacking



PS Jenkin

At this stage it was clear to Dr Bull that it would be necessary to go overseas to get a first hand view of anaesthesia in England whence many of the advances in the surgical disciplines were coming, also to attempt to get a Diploma in Anaesthetics which would allow him to register with the South African Medical & Dental Council as a specialist. To this end he arranged a passage to the United Kingdom – in those days by sea and without financial assistance. Ten days before the sailing date, he was laid low with Guillian Barre’ syndrome (an acute infective polyneuritis with ascending paralysis) and spent the next three months confined to bed. An interesting facet of this illness is that it gave him a first hand appreciation of the sensations of a paralysed patient and in particular, as he had bulbar involvement, the danger of inhalation of even the smallest amount of regurgitated stomach content. Thankfully he did not require a tracheostomy, (no cuffed tubes in those days) , and the then little appreciated hazard of putting a patient with bulbar palsy in the old ‘iron lung’ Drinker Respirator. ⁷¹

By the end of 1951, he had sufficiently recovered to return to work. Dr Bull again decided to go overseas and this time, succeeded in managing an all too brief a visit to the United Kingdom and Ireland. He passed the DA RCPS examination in Ireland in 1952 . Preparation for the examination was minimal and he had to rely on experience gained in the operating theatre, and in his case, useful tuition from Dr Peter Jenkin. On his return from the United Kingdom he found that Dr CS Jones had been appointed Head of the Department of Anaesthesia and that he had been designated first assistant. Now followed a period of development in the department documented by ‘Buck’ Jones. “It was a period when the specialty became recognized in the hospital, largely through the confrontational tactics of Buck Jones in the various committees, and Hacking’s previously mentioned inflexible attitude with the surgeons.”

Before proceeding further, other details of the following pioneers would be opportune.

THOMAS ARTHUR FULLER

MB ChB (Edin) DPH RCPS (Edin)

Dr Tom Fuller ^{72, 73} was born in East London in 1890. His school days were spent at the South African College School, Cape Town where among the early outstanding sportsmen were Tom Fuller (cricket and tennis), GJ Luyt ⁷⁴ (rugby and cricket) and BG Melle ⁷⁶ (cricket, athletics and rugby). Tom

Fuller played rugby for the first team in 1908. He studied medicine at Edinburgh University and qualified in 1914. At Edinburgh he excelled in many branches of sport, particularly football and tennis, for which he was awarded his 'blue'. He joined the South African Medical Corps soon after the outbreak of the 1914-18 World War I and served in the ill fated campaign at Gallipoli and later in East Africa. He was mentioned in despatches but as Professor EC Crichton once noted – a Military Cross would have been a more fitting award according to several persons serving with him.

On his return to South Africa he practised for a while in the Gardens, in Cape Town. Fuller received his DPH RCPS (Edin) in 1921 and in 1922 was appointed Lecturer in the Department of Pathology and Bacteriology at the University of Cape Town. It was from hereon that he was affectionately known as 'Uncle Tom' to both his students and colleagues. He left his post two years later in 1924 and joined Dr Sutton Charnock ⁷⁶ in general practice in the Rondebosch-Mowbray areas. Fuller was never really happy in this branch of general medicine. During this period, he was in addition, honorary Visiting Assistant Physician with Dr PWJ Keet at the New Somerset Hospital and succeeded by Dr R Turner. (Readers may be confused with the usage of old and new – the old Somerset Hospital was a shack replaced by the 'new' Somerset, a castle like structure, which in turn was upgraded by a 'new' hospital next door. This hospital was originally called the 'west block' and the old as the 'north block', both euphemisms for white and non-white sections, but did not conform to compass readings.)

As time passed, Fuller devoted more and more attention to anaesthetics, and in 1937 proceeded to London to specialize in that field. He returned to Cape Town and was appointed Lecturer in Anaesthesia at UCT. Subsequent to the death of Dr Gordon Forbes in 1941, he was appointed part time Senior Lecturer and on 1 January 1948 he did so in a full time capacity. In 1951 he accepted the position of Head of the Department of Anaesthesia at the University of Cape Town.

PETER STAPELTON JENKIN

MB ChB, FFA RCS (Eng) DA RCS RCP (Eng)

Peter was born on 2 September 1919 in the Krugersdorp district. He attended St John's College in Johannesburg and matriculated in 1936. He qualified MB ChB at the University of Cape Town in 1942 and took up a resident appointment at Groote Schuur Hospital from January 1943 to July 1944. During the war, Peter joined the South African Medical Corps and at the end of the war, worked on Randfontein Estates for some months. Deciding on a career in anaesthesia, he once more joined the Department at Groote Schuur Hospital in 1947 as a resident anaesthetist. In 1951 he obtained the DA RCP(Lond) RCS(Eng) and on his return was promoted to consultant anaesthetist where he was actively involved in the teaching of anaesthesia. In 1952 he entered private practice but continued as a part timer, on a sessional basis in the Department. A year later he received his FFA RCS (Eng)

He was also actively involved in the affairs of the SA Society of Anaesthetists, and served as Chairman of the Cape Western Branch during 1955-1956. He served on the Executive of the national body of SASA becoming President of that Society in 1968. His part time sessions were served mainly at the Red Cross Children's Hospital and Peter probably joins the list as one of the longest serving members in the Department. He resigned from this post in 1989 and retired from active private practice in 1995.

Notes and references

- 1 Once the University of Cape Town Medical Faculty became complete in 1920, the only facility for practical maternity work for medical students was at the Peninsula Maternity Hospital, situated in District Six.
- 2 The Women's Hospital Auxiliary, formed under the patronage and leadership of Princess Alice, Countess of Athlone, realizing the need for additional institutions for cripples, collected money and had a 72 bed Princess Alice Home built. This was handed it to the Cape Hospital Board in 1932.
- 3 In 1926, a German resident, Sir Max Michaelis, established a charitable institution for cripples, mainly suffering from bone tuberculosis, named Lady Michaelis Home in Plumstead. It had 48 beds for both white and non-white patients.
- 4 In 1910 there were two recognised training schools for midwives in the Peninsula, viz. The Free Dispensary and the Bree Street Maternity Hospital. In 1917 a third maternity institution, the St Monica's Home was opened at Garth House on the corner of Buitengracht and Longmarket Streets, Cape Town. The facilities at this Home rapidly became inadequate and the Home moved to its new premises in 'Bo Kaap' in 1950.
- 5 The University of Cape Town. 1918-1948. The Formative Years. H Phillips. p 149
- 6 Cluver EH. Medical and Health Legislation in the Union of South Africa. 1949.
- 7 Ibid. 62-63.
- 8 Ibid. 81.
- 9 *Cape Times*. 1922 Monday January 16.
- 10 Grant-Whyte H. Preventable Mortality and Morbidity in Anaesthesia. *South African Medical Journal* 1936; November 14: 721-729.
- 11 University of Cape Town Calendar. 1938/39 44-45.
- 12 The University of Cape Town. 1918-1948. The Formative Years. H Phillips. 338
- 13 Fig 1 & 11. *Inyanga* 1979 UCT 150th Anniversary. 27,28.
- 14 The Cape Town Free Dispensary, at 89 Buitenkant Street was opened in 1860 to provide 'a place where relief could be given to the poor without them having to travel all the way to Greenpoint'. In the early 1920's it was used for the teaching of gynaecology. Anaesthetists obtained their anaesthetic experience in the dental department of the Free Dispensary in later years.
- 15 University of Cape Town Calendar. 1937.
- 16 Dr Jack Smith qualified MB ChB (Edin) in 1920 at the age of 21 years. He obtained the DA RCP (Lond) RCS (Eng) in 1936. Shortly after his second year, during the First World War, he was obliged to administer anaesthetics because of the shortage of doctors. After qualifying he was appointed houseman at the Greenock Infirmary, Scotland. He later worked as anaesthetist to Dr Francis Brown in the gynaecology department at the Royal Infirmary. He returned to Cape Town in 1924 and started private practice. He retired in 1961.
- 17 Dr Ernest Emmanuel Lazarus qualified MB ChB (Edin) in 1923.
- 18 Dr Ernest Isaac Liberman obtained his MRCS (Eng) LRCP (Lond) in 1924.
- 19 Dr John Weinberg graduated at UCT with MBChB in 1923.
- 20 University of Cape Town Calendar. 1939/1940.
- 21 Dr Alice Muriel Felicite Goldman (later Steytler) qualified MRCS (Eng) LRCP (Lond) in 1922.
- 22 The Michaelis School of Art developed partly from a substantial endowment of £20,000 by Sir Max Michaelis, the mining-magnate-turned-art patron at the end of World War I, in 1920.
- 23 Sir Patrick Duncan who was Minister of Mines and a South African, succeeded Lord Clarendon, at the end of his term, as Governor General.
- 24 Cape Hospital Board. 15th Annual Report 1927/1928.
- 25 Cape Hospital Board. 17th Annual Report 1929/1930.
- 26 Louw JH. In the Shadow of Table Mountain. 1969: 324.
- 27 Encyclopaedia of Southern Africa. Eric Rosenthal. 590-591.
- 28 No 2 Military Hospital Wynberg was on the site of the original British Military Camp, with the first British occupation in 1795. It embraced three farms, Oude Wijnbergh, Vredenhof and Rust en Werk. It was strategically recognised as being midway between Cape Town and Simonstown and therefore provided them the opportunity of controlling the wagon road to Simonstown. 'Beyond

- the City Limits'. Helen Robinson 1998 : 3-8. During the first World War it was handed over to the South African Medical Corps.
- 29 Abelsohn J. Obit. *South African Medical Journal* 1979; 29 December: 1172.
- 30 The South African College School was formally inaugurated as a private high school for boys on 1 October 1829. On 2 April 1918 this same SAC, now a co-educational university college, was officially transformed into a fully-fledged university in its own right.
- 31 A thiobarbiturate, thiopentone sodium, also known as Thiopental; Trapanal; Penthiobarbital; Intraval; Nesdonal and Farmotel. It is the sulphur analogue of pentobarbitone and 30-50% more potent than hexobarbitone (evipan). It was introduced commercially as pentothal sodium in 1934 and has stood the test of time ever since.
- 32 Trichlorethylene was first described in 1864 by E Fischer. Its general anaesthetic effects were described by Lehmann of Wurtzburg in 1911 and by Dennis Jackson of Cincinnati in 1933. Dr Ozinsky once, in a lecture, described it as a good dry cleaning agent, which it is (an industrial solvent). It fell into disfavour because it is decomposed by sunlight and soda-lime, with the formation of toxic products such as dichloroacetylene. It could not therefore, be used in closed circuits.
- 33 Henry Edmund Gaskin Boyle (1875-1941) was born in Barbados and qualified at St Bartholomew's Hospital, London in 1901. He became Head of the Department of Anaesthetics and in 1917 got Coxeter, the instrument maker, to copy Gwathmey's gas-oxygen machine which became the first Boyle's Apparatus. His machine was modified over the years and was extensively used. He was left handed which explains why the flowmeters are on the left side.
- 34 Parbhoo NP. Five Decades - The South African Society of Anaesthetists 1943-1993. 35-41.
- 35 Dr Norman Cyril Smiedt joined the Department of Anaesthesia in 1947 and left in 1984 after 38 years of service, much of it in a part time capacity. He had worked with most of the 'great in anaesthesia' in England at that time and was a great raconteur with a very warm personality. He died in 1988.
- 36 Bull AB, Miller S. Tributes to our Colleague. Peter Jenkin. *The Cape Doctor*. December 1996 : 12-13.
- 37 Dr Jacob Levin joined the Department of Anaesthesia in 1961 and served for many years in a part-time capacity at the Red Cross Children's Hospital. He resigned in 1994 and continued in private practice right up to a few months prior to his death from a cerebral tumour, on 27 April 2000 aged 76 years. He was known to his surgical colleagues as 'the ever available Jack'. His son Dr Andrew Levin followed him in his footsteps as anaesthesiologist, qualifying at the University of Stellenbosch Medical School.
- 38 The Victoria Cottage Hospital was established in 1888 in Wynberg, Cape. In response to an application by the Medical School of UCT, students were allowed access to the non-white wards and pauper patients for the purpose of clinical medicine teaching from 1934-1937, until the opening of the new Groote Schuur Hospital.
- 39 Dr Walter Beck, son of Dr FEL Beck of Stellenbosch, graduated MBChB at UCT in 1951 and joined the staff of UCT as cardiologist in 1961 after training at the Brompton Hospital and Mayo Clinic. He was appointed Professor and Head of the Cardiac Clinic in 1972 and remained there until retirement in 1986. He was succeeded by Professor PJ Commerford.
- 40 A concentrated orange juice supplied in bottles and served diluted with water.
- 41 Jack Abelsohn Papers and private diaries from November 18, 1976 to 30 October 1979. These are a detailed record of his illness, treatment, medical attendants, visitors, appointments etc. Held in SASA Archives by Dr N Parbhoo.
- 42 Louw JH. In the Shadow of Table Mountain. 1969: 300.
- 43 Myers HS. A Brief History of the Cape Town Medical Faculty. *Inyanga* 1943; October Vol II No. I : 48-50.
- 44 The Joint Agreement. For some details see appendices.
- 45 Of the five provinces in South Africa namely : Cape Province, Transvaal, Eastern Cape , Orange Free State and Natal. These were administered as separate units.
- 46 Harrison GG. Anaesthetics: A Great Safety Record. *Medical Chronicle* 1987; October 12.
- 47 Dr LB Goldschmidt was surgical registrar in 1924. In 1925 he was appointed additional urological surgeon. In 1931 he succeeded Dr E Barnard Fuller as Head of Department and Clinical lecturer in

- Urology. It was through the foresight of Dr Goldschmidt and Dr M Cole Rous that the idea of a College of Physicians and Surgeons and Gynaecologists came about.
- 48 Dr Robert M Frater graduated in 1952 and went to the Mayo Clinic to train as a surgeon. He joined the department of cardiothoracic surgery at UCT as a senior lecturer and in 1962 was appointed assistant Professor and Head of the department of thoracic surgery at the Albert Einstein College of Medicine, New York.
- 49 In 1922 Dr Thomas Lindsay Sandes was appointed part time lecturer in surgery at the Somerset Hospital. When Dr Moffat resigned he was promoted to senior lecturer in surgery.
- 50 Professor Eric Cuthbert Crichton was appointed to the Chair of Obstetrics and Gynaecology towards the end of 1919 when the clinical departments were established. He was one of the 'big three' Saint, Falconer and Crichton.
- 51 Dr James Luckhoff qualified MB CM (Edin) in 1899 and obtained the MD (Edin) in 1902. He was honorary visiting ENT surgeon to the New Somerset Hospital.
- 52 Dr Pieter Roux did his postgraduate surgical training at Edinburgh and received the FRCS in 1926- the first Cape Town graduate to do so. In Liverpool he obtained the MCh. (Ortho) in 1930 and returned to Cape Town where he later in 1934 became Head of the department of orthopaedics.
- 53 Dr Phillip BL Saltman was a general practitioner anaesthetist.
- 54 Dr George Sacks was appointed temporary part time lecturer in anatomy in 1928. In 1929 he became surgical registrar and was promoted to assistant surgeon in 1933. Following Dr L Sandes' retirement, he was appointed Head of a surgical firm and clinical lecturer in surgery. He remained here until his retirement in 1963.
- 55 Dr John Urban Human was the author of 'Blind intubation and the signs of anaesthesia'.
- 56 Dr Johanna (Hanna) van Niekerk was later to be Mrs. CJB Muller, wife of Professor of Radiology.
- 57 Dr Shirley Cole graduated MBBS (Univ Durh) in 1925, having studied under Professor George Grey Turner, who also taught Professor Charles Saint. During World War II she concentrated on anaesthesia and worked as honorary anaesthetist at both Groote Schuur and Victoria Hospitals. She retired from anaesthesia in 1964. Obit. Louw JH, Massey P. *South African Medical Journal* 1972; 16 September: 1360.
- 58 Dr Lindsay van der Spuy graduated MBChB (UCT) in 1940.
- 59 Dr John Henry Bam graduated MB ChB (UCT) in 1940.
- 60 The University of Cape Town. 1918-1948. The Formative Years. Phillips H. 320-321.
- 61 Professor Jan Francois Papenfus Erasmus was appointed to the Chair of Surgery on 1 January 1950. He was born in Standerton, Transvaal in 1907 and was one of the most brilliant graduates of Witwatersrand University. He obtained his MB ChB in 1933; ChM in 1940 and was hailed as a leading 'physiologist surgeon' in South Africa. He resigned from the post in April 1955 to fill the post of Chief Neurosurgeon at Pretoria University.
- 62 Parbhoo NP. Five Decades – The South African Society of Anaesthetists 1943-1993. 133-135.
- 63 Dr Evangeline Grace Shearing was born in 1920 and obtained her MB ChB (UCT) in 1946. After a short spell as houseman to Dr Lang in Dermatology; Professor Grieves in Radiology and Mr Lennox Gordon in Surgery, she spent six months as Medical Officer to Dr Michael Gelfand in Salisbury, Rhodesia. Thereafter she returned to Groote Schuur Hospital and was offered a post as registrar in anaesthetics by Dr 'Tom' Fuller. She married Dr Edgar Hacking in July 1950.
- 64 Parbhoo NP. Obit. *South African Medical Journal* 1999; 89 (8): 848.
- 65 Dr Harold R Griffith and Enid Johnson used curare (the commercial preparation Intocostarin) deliberately for relaxation during anaesthesia on 23 January 1942, in Montreal, Canada.
- 66 The technique of induced hypotension during anaesthesia, using ganglion blocking agents was applied to facilitate a bloodless field of operation, easier surgical dissection, decreased blood loss and decreased oozing beneath skin flaps and therefore better healing. The technique was not without its complications. Professor Bull's aphorism was 'it should only be used to make an impossible operation possible, not to make a difficult operation easy.' But some anaesthesiologists would differ.
- 67 Bryn TK. The Development of Anaesthetic Apparatus. 1975: 151.
- 68 Proust AJ. Ed. A History of Medicine in Canberra and Queanbeyan and their Hospitals. 1994: 92-93.
- 69 Abelsohn JN. Obit. *South African Medical Journal* 1958; September 20: 949.

- 70 Dr H de Villiers Hammann, a registered neurosurgeon, who had settled in Cape Town in 1946, was appointed to the newly created post of neurosurgical registrar in March 1948. The post was upgraded to honorary neurosurgeon in 1949. Until 1948 neurosurgery could only be performed if the main general surgical theatres were unoccupied. Dr Hammann was responsible for locating the J4 theatres which were upgraded as neurosurgical theatres and opened on 15 August 1948.
- 71 The History of Anaesthesia. International Congress and Symposium. Ed. Atkinson RS, Boulton TB. Proceedings of the Second International Symposium on the History of Anaesthesia. London .2nd-1987: 396.
- 72 Abelsohn JN. Obit. *South African Medical Journal* 1958; 20 September: 949.
- 73 Crichton EC. Obit. *South African Medical Journal* 1958; 27 September: 969.
- 74 Richard Luyt, son of rugby Springbok RR Luyt in 1910 and 1913 received his BA (UCT) economics in 1936 after which he went to Oxford on a Rhodes Scholarship. During World War II he distinguished himself as an NCO and an officer in the British Army. He was appointed Governor of British Guiana and knighted in 1964. In 1967 he was appointed Principal and Vice-Chancellor of UCT in succession to Dr JP Duminy.
- 75 Basil G von B Melle was a BA graduate who had enrolled at UCT for anatomy in 1912. He graduated in Oxford in 1919 and obtained his FRCS (Edin) in 1922 after which he practised as a paediatric surgeon in Johannesburg.
- 76 Dr F Sutton Charnock was Superintendent and Senior Medical Officer at the Peninsula Maternity Home in 1920. In 1924 he was appointed clinical lecturer in Obstetrics and gynaecology. He served as Medical Superintendent and clinical lecturer at PMH until 1950.

CHAPTER III

THE BUCK JONES ERA

Dr Cecil Stanley Jones, who called himself Buck Jones (after the legendary American cowboy) returned to South Africa following a three year stint of specialist training as a Mayo Foundation Fellow with Dr John S Lundy¹ at the Mayo Clinic² in Rochester, Minnesota, USA. He held a Master's degree in Anesthesiology (MS) from the University of Minnesota; was a Diplomate of the American Board of Anesthesiology and also a Fellow of the American College of Anesthesiologists (now defunct). There was a small problem however, in that these qualifications were not recognised by the prevailing South African Medical and Dental Council, nor did Buck have the statutory 2 years 'time' in general practice and was therefore unable to register as a specialist. He arrived in Cape Town in June 1950 and his first task was to seek employment. Dr Norman Cloete, the assistant Medical Superintendent of Groote Schuur Hospital, explained that the new *Joint Staff Agreement* between the Cape Provincial Hospitals Department and the University of Cape Town was nearing finality and that a senior registrar's post was envisaged on the establishment of the new Department of Anaesthesia. There was, however, no indication as to when exactly this would be available.

After a very short interlude at the Addington Hospital³ in Durban where Dr Jones had accepted the post vacated by Dr Sam Galloon,⁴ he received a telegram from Groote Schuur Hospital, offering him the senior registrar's post in the new Department of Anaesthesia. Sam, who was working at the Addington with his Chief, Dr Harry Grant-Whyte, left to gain experience in the Anaesthetic Department of Professor Mushin of Cardiff.⁵ This initial offer to Dr Jones from Groote Schuur Hospital was turned down because of commitments in Durban but early in 1952, he was once more approached by Groote Schuur Hospital, this time offering him a Consultant (Grade E) post. This was accepted.

On his arrival in Cape Town with his family, in February 1952, he was informed that he was to take the place as deputy to Dr Tom Fuller, in place of Dr Edgar Hacking who had left to enter private anaesthetic practice. At this period Dr Fuller was indisposed and confined to bed with influenza. Buck



20 Dr Cecil S Jones

therefore had the responsibility of running the Department till Dr Fuller resumed his duties. By now, the additional members who had joined the Department of Anaesthesia in the very early fifties (1951) were Joseph Ozinsky, Gaisford G Harrison and Leah Atkins. Since 1950, under the new Joint Staffing arrangements, the Department saw a number of new registrars joining on a regular basis.

Dr Fuller's instructions to Dr Jones were "I should report to the Medical Superintendent and then find my way to the Department's office and headquarters, a tiny room tucked away at the back of the Main Operating Theatres on B Floor, next to the surgeon's change room and adjacent to the Urology Department." ⁶ This Department or headquarter was just a room, nothing more, no secretarial help of any sort at this stage! "The many details of the first day elude me, but I remember well that it was made plain to me that all routine assignments for the remainder of the month had already been made. I was assigned to the neurosurgery theatres. These happened to be as far away from everybody else in the Department as was physically possible. The work was considered deadly dull and time consuming. Interlopers are wise to keep a low profile so I made no protest." ⁷

Comment : The theatres Buck refers to were later known as the J4 theatres, situated in the Neurosurgery Department. This was a separate building, the old 'private block', originally meant for private patients but never used as such, connected to the Groote Schuur Hospital via a long underground tunnel. This block also housed the original Anaesthetic Registrar's room. These theatres where Dr de Villiers Hammann ⁸ started neurosurgery were later to be the scene of major neurosurgical work under Head, Professor JC (Kay) de Villiers, (also a recognised world authority on medicine during the Anglo Boer War of 1899–1902) ⁹. This tunnel proved to be a hair raising experience for members of the Department of Anaesthesia who were transferring high risk patients from the main hospital and back. The author considers working in these theatres, in later years, a privilege, as they overlooked the new highways (1960's) to and from the Cape Town city centre, incorporating the notorious 'hospital bend', a scene of major traffic delays and collisions over the years. Immediately behind lay Devil's Peak and the foot of Table Mountain, the reserve part of the Groote Schuur estate which, far from causing boredom, enthralled the neuroanaesthetists with an unparalleled view of the mating of wildebeest, springbok, kudu and a variety of mountain zebra, which in 1980 formed part of the Quagga (*Equus quagga*) breeding project. The Quagga, a partially striped

zebra, was believed to have become extinct in 1883. DNA studies subsequently showed them to be virtually identical to the plains zebras, found throughout southern Africa.¹⁰

When the opportunity presented itself Dr Leah Atkins quizzed Dr Jones about his professional and personal life. Thereafter, as the opportunity arose, she introduced him to other members of the Department. Absent at that time were Drs Arthur Bull and JD (Blaar) Carstens. Both had completed the required period of clinical experience demanded by the SAM&DC for registration as specialists and had departed for the United Kingdom to write the DA RCP(Lond) RCS(Eng) examination.

The University of Witwatersrand, at this time, also offered a DA and had done so since 1949, but the English DA RCP(Lond) RCS(Eng), a conjoint diploma, had been established in 1935 and enjoyed worldwide acceptance. It was Dr Fuller's policy to encourage his trainees to strive for the more 'prestigious' qualification. In so doing they were also assured of an opportunity, at little extra expense, to proceed to Dublin where the Conjoint Board of the Royal Irish Colleges had, since 1942, also held examinations for a DA, the DA RCP&S (Ire). These examinations normally being held soon after those of the English College. Both Arthur Bull and Blaar Carstens made use of this.

The policy of detaching trainees on unpaid study leave carried obvious long-term benefits, amongst them the increased attractiveness of the Department to prospective recruits. The problem, however, was the short term strain of people power to handle the daily clinical load. Dr Fuller solved this by making temporary appointments to the vacated posts. As these appointees were usually seeking training and were relatively inexperienced, the load on the rest of the members of the Department was increased.

Few members resented this as they knew their turn would come. But the tenuous nature of the temporary appointments was a major disadvantage to their holders who worked in a sort of limbo, awaiting reports from overseas with mixed feelings. Success for the absent anaesthetist spelled doom to their own immediate plans. "I think some hoped secretly that the overseas news would be bad since it meant that their present tenure would be extended, possibly for at least six months. Events were to lead eventually to complete abandonment of this policy."¹¹

In mid 1952 all the training posts on the GSH establishment were advertised, as was usual. As Dr Fuller was past the normal age for retirement, his G-grade post was also advertised. But out of deference to Dr Fuller, nobody applied for this post. The staffing establishment at that time was as follows:

Medical Officer	Grade	Registrar
	A	Year 1
	B	Year 2
	C	Year 3
	D	Lecturer Specialist Consultant
	E	Senior Lecturer “
	F	“ “
	G	Principal Specialist – Head of Dept

From mid 1960, a greater insistence was placed on being registered as a specialist, but this was still not compulsory. An example was Professor J Ozinsky, who qualified as a specialist but chose not to register as a specialist.

A short while after the closing date for applications, Dr Jones was informed by the Medical Superintendent Dr Norman Cloete (acting in place of absent Dr Bennie de Wet ¹²) that the closing date had been extended and that he was at liberty to apply for this position. Dr Jones applied and was duly appointed Head of the Department, in place of Dr Fuller, in 1952.

Soon after his appointment, Dr Jones was summoned by Professor Benjamin Ryrrie ¹³, Dean of the Faculty of Medicine and incumbent of the newly created Chair of Medical Education. “Professor Ryrrie explained to me that the post-war ‘bulge’ in medical graduates, together with the paucity of specialist training opportunities in the country and the difficulties inherent in overseas travel at that time, had induced the University to institute a series of new higher degrees in medical specialties. These were designated MMed (Master of Medicine) in the appropriate discipline. In addition to taking over the training of

undergraduates from Dr Fuller it would be my duty to formulate plans for the postgraduate training and examination of candidates for this new Degree.”¹⁴

“Postgraduate teaching carried with it a considerable number of extra duties. It was inevitable that there would be an expansion of the staffing of the various surgical specialties to accommodate for teaching these subjects. This in turn would bring an increase in demand for anaesthetic services. And so it proved to be. Throughout my tenure my major problem was the attempt to match supply to demand. Having had no experience whatsoever of the philosophy of Economics, my surgical colleagues proved to be remarkably obtuse when exposed to the necessity of learning the laws governing supply and demand.”

“It was true that to meet an increasing demand I would have the instrument of the MMed (Anaesthetics) which should ultimately supply adequately trained anaesthetists, some of whom would be available to join the Department.” The supply problem could be eased by shortening the course but this would affect quality and Dr Fuller had emphasized the quality of the end product. “At most universities, quality at Masters level demands some research project as one of the components of the requirements to be satisfied before the degree can be awarded. This implies the existence of the relevant facilities and of these, at that time, almost none existed.”

“That the staff I had inherited would not all agree with me or my executive decisions, I did not doubt. Setting aside the several part time appointments, I would have at my disposal a full time establishment of 6 training posts and 5 consultant posts. All 11 posts were presently occupied by anaesthetists in training and these could be refilled annually until the 5 consultant posts were appropriately occupied. Trainees who could not or would not meet my requirements could be overlooked at the time of re-appointment of more promising new candidates. Consultant posts which were appropriately filled were not, of course, advertised until their occupant voluntarily vacated that post.”¹⁵

“I had another weapon at my disposal. This derived from Section 86 of the Medical, Dental and Pharmacy Act (No 13 of 1928).¹⁶ Anaesthetists in general considered this Act to be draconian since it

defined all deaths to which an anaesthetic might have, or actually did contribute, as deaths *not* due to natural causes and subject to judicial inquiry. (More will be said about this later as this Department and in particular Professor Gaisford Harrison produced an ongoing study over a period of 32 years from 1955-1987, and for which he was internationally recognised). I did not subscribe to this view. If due care was always exercised in every anaesthetic, proper monitoring and record-keeping a matter of routine and any unwanted outcome carefully described, or as soon after the event as was possible, no anaesthetist need have any fears about persecution at any inquest. While in my position, the threat of exposure could be relied upon to silence unjust criticisms and opposition to hierarchical structures provided this was used judiciously and seldom. I even found it of value when, in 1952, telephone services were under heavy pressure. Advancing the need to be able to respond to emergencies at any hour of the day or night when a life was threatened at Groote Schuur Hospital, raised my position from the very bottom of a long list of applicants for service at the very top !”¹⁷

“When I took over from Dr Fuller, I assigned to several of the more senior registrars the task of supervising their own grouping of the widely dispersed operating theatres in Groote Schuur hospital. Each had his or her own specific junior staff and with this staff each had to cope with the clinical load in their assigned theatres. The 3 main theatres on the B floor I reserved to myself. Into one I put Gaisford Harrison and into another Joseph Ozinsky. I had judged them to be the most promising of the junior trainees. Sandwiched between them in the central theatre I took care of all the cases brought to me, while keeping a supervisory eye on events elsewhere. The passage of time confirmed the wisdom of that early decision. Some of the older members found the responsibilities of their new assignments to be too great a tax upon their abilities. They moved into private practice in Cape Town and elsewhere.”¹⁸

PLANNING A NEW DEGREE

“Initially the University had no idea of what the demand for the degree might be, nor the size of the possible market for its holders. A meeting with the Director of Hospital Services ensued and the mutual speculation, since no facts were available, was that the Cape Province should be able to absorb between 2 and 3 specialist anaesthetists per annum.” With hindsight this proved to be an underestimate.

“Properly managed, my 6 training posts could be usefully employed over a three year period of training and yield our estimated 2 graduates annually. In that time span candidates could be rotated through all the various surgical specialties to acquire a thorough working knowledge of the anaesthetic demands peculiar to each. I would have ample time and opportunity to gain an excellent idea of each candidate’s practical skills: but only if they came out of my own training programme. If they came from elsewhere I would have no insight into their practical abilities. Therefore the examination would have to include a practical test of clinical skills. It went without saying that there should be a written and an oral component also.” (author’s note: This practical test turned out to be impractical, ideal but unworkable.)

“The University would have to be satisfied that the standard I would set met their own criteria. Common sense suggested that this would best be achieved if I set up an examining Board with its membership drawn from other disciplines in Faculty. Anatomy, Physiology, Pharmacology and Medicine and Surgery were included in the Board.” Comment: This later turned out to be irrelevant to anaesthetic training. The parallel problems experienced in the structure of the FFARCS(Eng) and the FFA(SA) was the inclusion of surgeons and physicians in the final examination. These, as well as the Basic Science coexaminers in the primary were also subsequently dropped.

“I was considerably exercised about how to make good the research component until I remembered that wide reading had been obligatory, for my thesis for the Masters. The Medical Library was being expanded in book stock and facilities. Aspirant candidates could, as a first step, be required to demonstrate their ability to explore the literature and to collate their findings in a lengthy, properly referenced essay on a subject of my choice.”¹⁹ This was accepted by both the Faculty and the Senate and the degree was included in the 1953 University Calendar.

From 1950 each student was now required to give a minimum of 20 (16 surgical and 4 dental) anaesthetics as compared to the previous requirement of 10 (8 surgical and 2 dental) anaesthetics as part of their training.²⁰ In 1954 students were advised to consult anaesthetic textbooks in the medical school library and the recommended books were:

Anaesthetics in General Practice by Stuart C Cullen (The Year Book Publishers Inc.)
Inhalational Anaesthesia by Arthur E Guedel (Macmillan New York) ²¹

By 1955 the University issued the following notice for MB ChB :

‘The course consists of a series of lectures during the first six weeks of the fifth year of study, and of practical instruction in the administration of anaesthetics during the remainder of the fifth year.

The lectures include a revision of the physics and chemistry, physiology, anatomy and pharmacology pertaining to anaesthesia; and instruction in the methods of use of anaesthetic equipment and the commonly used inhalational and intravenous anaesthetic agents. Commonly used methods of local anaesthesia and the use of muscle relaxants are also described.’

‘Practical instruction includes the administration by the student of at least 16 surgical and 4 dental anaesthetics and is undertaken at Groote Schuur Hospital and the Cape Town Municipal Dental Clinic, Hope Street’ ^{22, 23}

MMed (Anaes) ‘ Training in the theory and practice of Anaesthesia, extending over an optimal period of three years and leading to the degree of Master of Medicine in Anaesthesia, is provided. Details and lists of books recommended may be obtained from the Head of the Department’ ²⁴

UNDERGRADUATE TEACHING

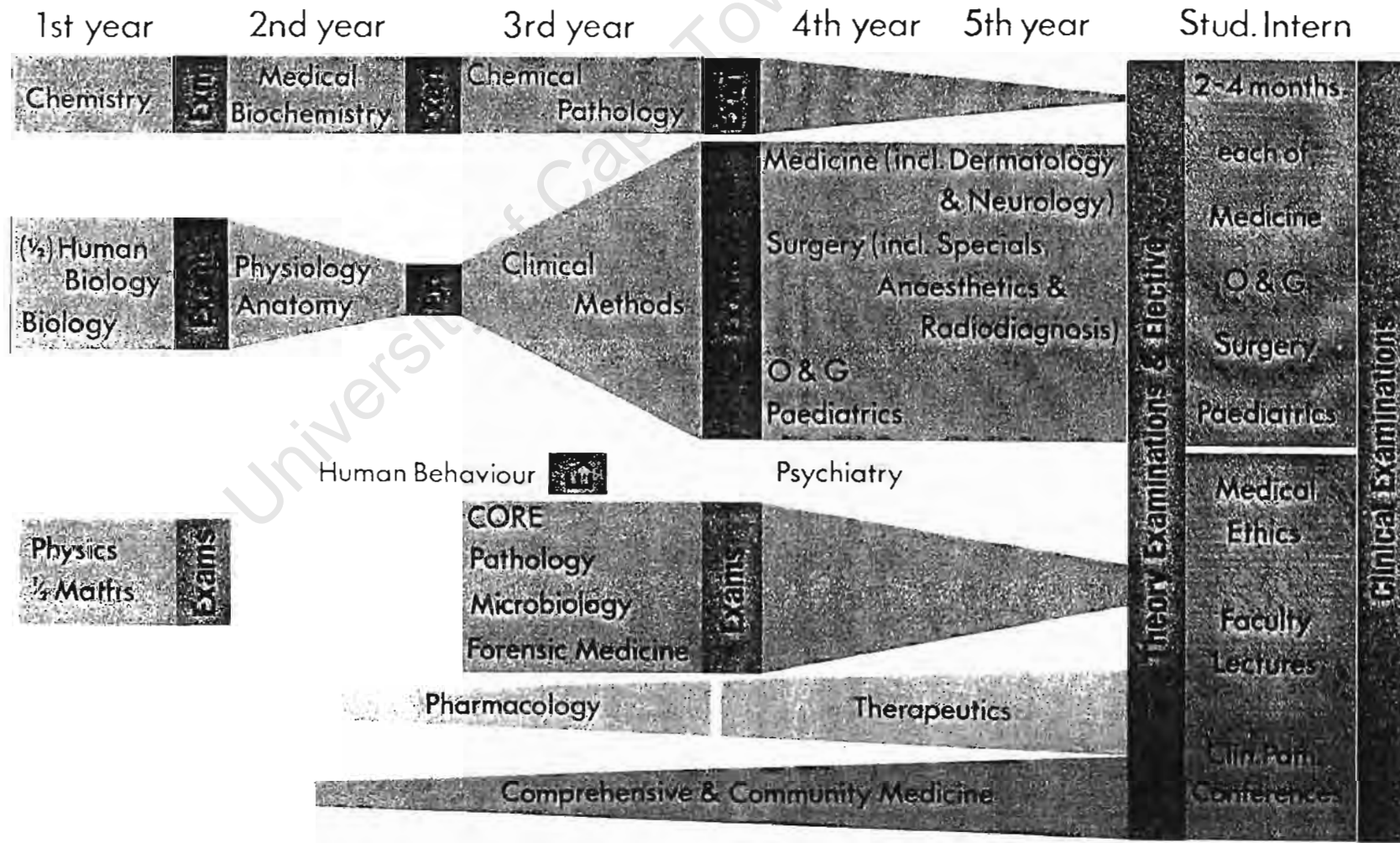
The statutory prescription of the SAM&DC, in anaesthesia , was a minimum of 10 lectures at the beginning of the fifth year of study, plus the personal administration under supervision of 20 anaesthetics. By custom the practical administrations included a session administering ‘gas’ for dental extractions. Dr Jones recounts “ My own experience of this archaic requirement had included a young woman, already of swarthy hue, who had turned black and had stopped breathing. My supervisor had pumped oxygen into her lungs and had administered a couple of hefty blows to her sternum. She resumed breathing and apparently recovered completely. At that time I admired his aplomb but decided that I would always see to it that I administered at least 20% oxygen whenever I had to use nitrous oxide.”

“Practical instruction of students in the administration of an anaesthetic remained a difficult problem until I had been able to take advantage of a Cecil John Adams Travelling Fellowship.^{p 53, p 54} During 6 months of study leave I visited a majority of teaching centres in the UK and a great number of

MEDICAL CURRICULUM ~ 1938

							Years (Semester)
1	2	3	4(1)	4(2)	5(1)	5(2)	6
BOTANY	ANATOMY	ANATOMY	REVISION ANATOMY	MEDICAL JURISPRUDENCE - TOXICOLOGY	PSYCHOLOGICAL MEDICINE		VENEREAL & SKIN DISEASES
		PSYCHOLOGY					DISEASES OF CHILDREN
			ANAESTHETICS		PRINCIPLES AND PRACTICE OF MEDICINE		CLINICAL MEDICINE
ZOOLOGY	PHYSIOLOGY AND MEDICAL BIOCHEMISTRY	BACTERIOLOGY	OBSTETRICS PRACTICAL AND CLINICAL		OBSTETRICS	CLINICAL OBSTETRICS AND GYNAECOLOGY	
PHYSICS		PHARMACOLOGY	SURGERY AND CLINICAL SURGERY			CLINICAL AND OPERATIVE SURGERY	
			PUBLIC HEALTH			OPHTHALMOLOGY	
CHEMISTRY		PATHOLOGY					
					INFECTIOUS DISEASES	VACCINATION MEDICAL ETHICS RADIOLOGY	

UNDERGRADUATE MEDICAL CURRICULUM, U.C.T.



Inyanga 1979

FIG. II

large and small hospitals in South Africa and what are now Zimbabwe and Namibia. These experiences convinced me that a different approach was needed. (Note: This provided an important contribution as an assessment of anaesthetic service in this country. Up until this period we had no idea as to the spread of service and of anaesthetists.) Having by now acquired senior and junior staff to cover the routine and clinical load, I detached myself almost completely from routine work in the operating theatres and moved my contributions to the GSH Casualty Department.” p 54, 25

The Professor of Surgery routinely assigned 2 students for practical surgical instruction and these would alternate in assisting the Casualty Officer with minor surgery. The one who was standing by and watching, was given the task of administering the anaesthetic while Dr Jones stood by the side. The surgical load varied from day to day and not all were able to squeeze in their twenty anaesthetics. The routine preoperative examination, intravenous induction and N₂O and O₂ with added ether never varied except when the surgical procedure allowed for field block or regional anaesthesia.

THE CECIL JOHN ADAMS TRAVELLING FELLOWSHIP ²⁶

This Travelling Fellowship Trust was established by Arthur Edward Adams in memory of his son Cecil John Adams who was killed in action in World War II, in July 1941. Arthur Edward Adams was born in Shropshire, England on 4 March 1869. After completing school he apprenticed himself to a pharmacist. In 1890 he had gained the necessary certification and seeking advancement in his career, he found employment in the Transvaal Republic. Johannesburg was rapidly developing and in 1897 he entered into a partnership with Mr Macdonald. Macdonald-Adams were dealers in chemicals and their principal stock-in-trade was dynamite and business was thriving.

The Trust stipulated that after completion of the period of appointment, Adams Fellows are to return to South Africa for at least 3 years in order that the benefit of (their) study, research and experience may be made available to fellow South African countrymen. The qualifications required are three years residence in South Africa prior to application, unimpeachability of character, outstanding ability and aptitude and a desire to profit from further study, research and experience in other countries.

By 1 January 1953, Arthur Bull was appointed officially as Anaesthetist and Senior Lecturer on the Joint Medical Staff, University of Cape Town and the Cape Provincial Administration. The research programme up until 1953 was very limited since it had to take place in what little spare time the researcher had available. One project at least was able to continue and resulted in publication. ^{p28}

STAFF IN 1954

With Arthur Bull off to Oxford, Dr Jones was the only full time anaesthetist with a higher qualification in the specialty. In fact in June 1954, in addition to Dr Arthur Bull, Drs Gaisford Harrison, Joseph Ozinsky, Bruno Blankenberg, Nathaniel Miklem and Sarel Knipe had left for the United Kingdom. There were, however, 5 part time specialists who anaesthetised on a weekly sessional basis for their respective surgeons. Of them, Jack Abelsohn was the most senior. The others were Drs Edgar Hacking, Norman Smiedt, Sam Citron and Peter Jenkin. They, however, did not assist with emergency duties and these extended to cover the Peninsula Maternity Hospital, the Mowbray Maternity Hospital and during this year, the obstetrical wing of the New Somerset Hospital (Shipley). ²⁷

Later Dr Gordon Henderson, one of the more senior full timers left for private practice. Dr Carstens who had returned from overseas, was now the Third Assistant Anaesthetist. In addition there were 10 registrars.

JOINT MEDICAL STAFF

Under the terms of the agreement entered into between the University of Cape Town and the Provincial Administration of the Cape of Good Hope, the Department of Anaesthesia of the Ancillary Division of the Faculty of Medicine (which included physiology, medical biochemistry and later, medical engineering) was allocated the following posts :

1 post	Medical Practitioner	Grade G	£2000 per annum
1 post	Medical Practitioner (part time: 3/11ths Grade F)	Grade F	£1800 per annum
1 post	Medical Practitioner	Grade E	£1600 per annum

1 post	Medical Practitioner (part time: 3/11ths Grade E)		
3 posts	Medical Practitioner	Grade D	£1200 x 50 – 1500 per annum
1 post	Medical Practitioner	Grade C	£1000 x 50 – 1200 per annum
3 posts	Medical Practitioner	Grade B	£720 x 40 – 960 per annum
2 posts	Medical Practitioner	Grade A	£500 – 600 – 660 – 720 per annum

The A,B and C posts were the registrar posts.

Fortunately, soon after Gordon Henderson left, Dr Sarel Knipe, who held an English DA, in 1955, applied for a job and was accepted. Shortly hereafter, Dr Jones was asked by the Hospitals Department to proceed to Johannesburg to represent them in negotiations over standardization of the signage and dispensing of compressed medical gases.

Nursing Assistance

“At this time of over-extension, my burdens were greatly eased by the nursing assistance originally organised by Dr Fuller, through the offices of the assistant matron in charge of the operating theatres staff, Sister Gladys Solomon. Gladys had assigned two of her Sisters to the Department. They were Sister de Kock and Sister van der Merwe. Sister de Kock left to get married and Sister van der Merwe went to Denmark to train as a nurse-anaesthetist. From Denmark she sent me a specimen of the anaesthetic record card which was in use there. This stimulated me to revise, alter and improve the rather primitive Record Sheet which I had introduced. I think that it has remained relatively unaltered at GSH ever since.

In place of these two ladies, Sister Solomon seconded Sister Thirle Anderson to my Department and provided her with a regular supply of assistants. Sister Anderson proved to be a tower of strength. Her dedication and hard work enabled me to introduce a centralized system for controlling drugs used in anaesthesia. Each Theatre Supervisor had previously ordered at random from the central dispensary and had kept no check upon habit forming drugs. Now stock lists were compiled for each theatre suite, designed to supply just sufficient stock for a week's work. Each week depleted stocks were brought back to normal levels by Sister Anderson from her own central stock, kept under lock and key in the Department.

Although it involved heavy responsibilities as well as physical risks (she once sustained burns when a bottle of ether fell onto a bar heater and broke), her work enabled the Department to pioneer

ANAESTHETIC LAJ

HOSPITAL:

HOSP.
NO.

I.D. CHECK ?
VERBAL VISUA

SIGNED:

ELECTIVE EMERGENCY

PATIENT:

OPERATION:

SURGEON:

ASSISTANT:

SCRB NURSE:

FLOOR NURSE:

PLAN	O	EXECUTE	COMPLICATIONS X											CAUSES ?	TREATMENT	OUTCOME				REMARKS
			G.I.		RESP.			CARDIOVASCULAR								REFER	DEFER	SUCCESS		
			SALIVATE	VOMIT	COUGH	BRONCHO- SPASM	TACHY- PNOEA	APNOEA	HYPOTENSION	HYPERTENSION	BRADY- CARDIA	TACHY- CARDIA	DISTURBED RHYTHM					OTHER ?	WITH COMPLICATION	
PRE-O DRUG DOSES																				
VENT-B PUNCTURE																				
LV. C DRUG DOSE																				
O ₂ D																				
N ₂ O E																				
DIAB. F DRUG																				
TOXIC G DRUG DOSE																				
I.T. H																				
RELAX J DRUG DOSE																				
I.P.P.R K																				
REVERSE L DRUG DOSE																				
P.A.R. M																				
WARD N																				

O INDICATE PLAN ALPHABETICALLY

X INDICATE DEGREE NUMERICALLY: SCALE 0-4

□ SHADE RELEVANT COMPLICATIONS

? ENTER IN 'REMARKS'

OTHER:-

GA

ANAESTHETIC. [B]

IDENTIFICATION

Hosp. No.

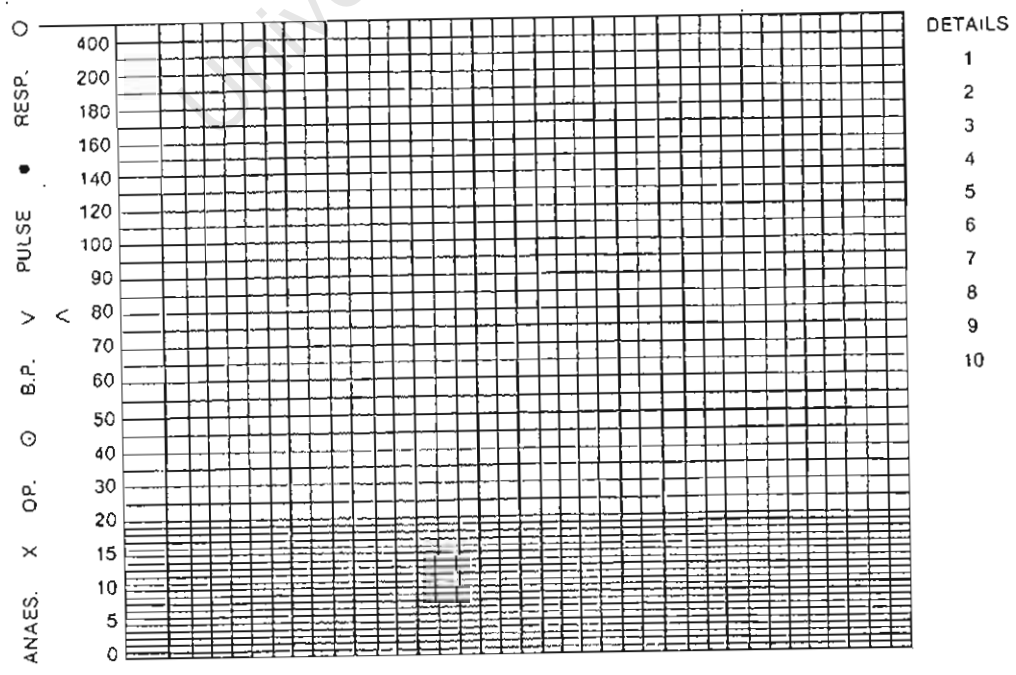
NAME: ADDRESS:

EXAMINATION

AGE: SEX: HEIGHT: MASS: SMOKES? COUGH?
RECENT FOOD? WHAT? WHEN? DENTURES?
ALLERGIES?
PREVIOUS ANAESTHETICS:
C.V.S.:
RESPIRATORY:
ADDITIONAL?

RECORDED BY: DATE: TIME:

SIGNED



NAME ~~age~~ DATE 7.5.44 OPERATION Ca Stomach SURGEON SANDLES
ANAEESTHETIST Smirrell

G.S.M. 39

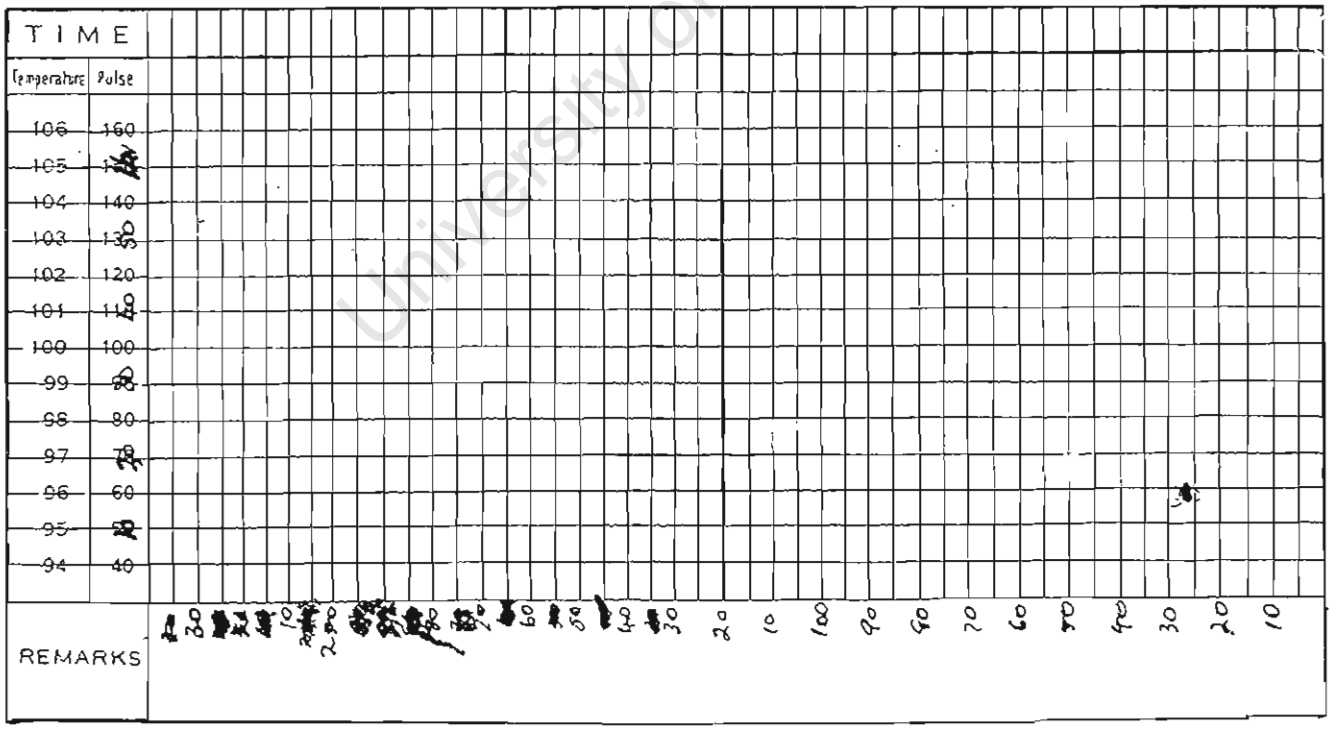
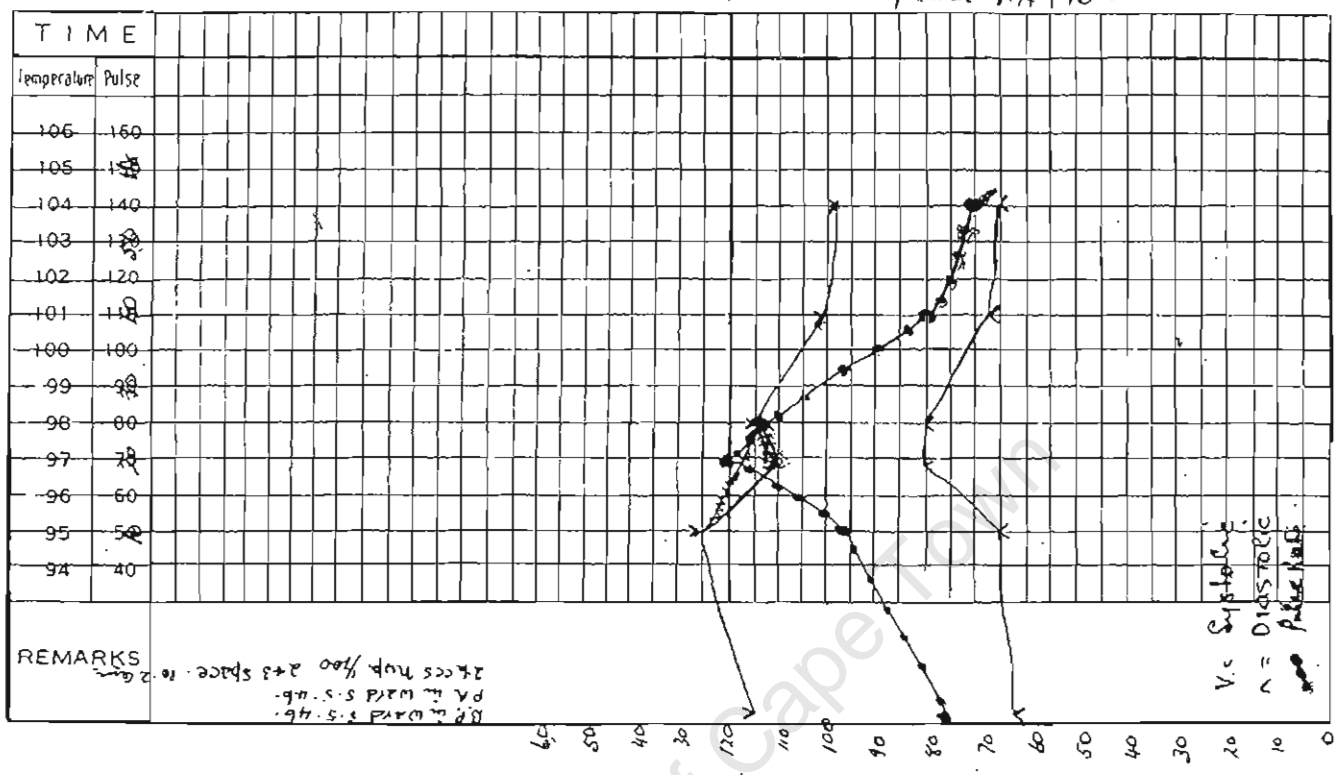
HALF HOURLY PULSE TEMPERATURE CHART

ANAESTHETIC Spinal
100/100 60/90
2.6 lcs 2+3 Sp are
filling up.

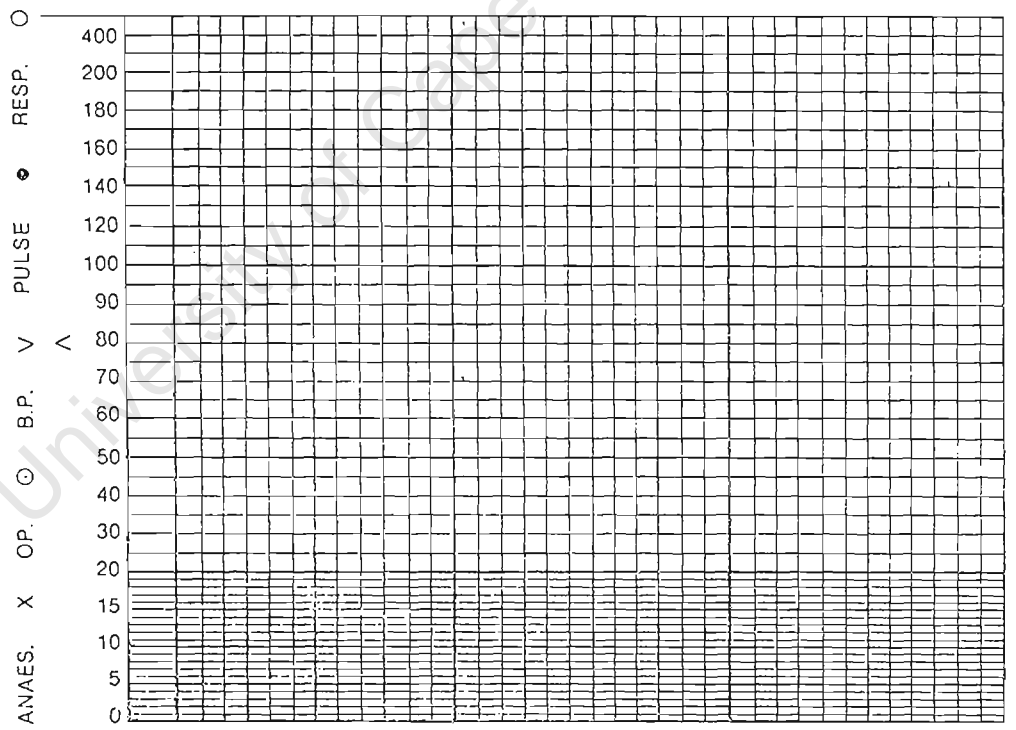
NAME Label R Freitas c.f. age 47.

hemibutyl 50/10
0.5 ml 1/3 9/15
Scaph INDEX 10/10
Ephedrine 5 1/4 9.20.

DATE 7.5.44



2 S.A.O.S. C.T.



DETAILS

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

GROOTE SCHUUR HOSPITAL
ANAESTHETIC RECORD

COMPLETE BY HAND WHEN LABEL NOT AVAILABLE

NAME AGE
FOLDER No. BIRTH RACE SEX
ADM. DEPT. WARD

Diagnosis.....
Proposed Operation.....
Is consent for operation signed correctly?..... Surgeon
Previous Anaesthetics: Details Difficulties
Smokes?..... Coughs?..... Mobility of Jaw?..... Of Neck?..... Mouth: Loose teeth Dentures..... Edentulous
Drug Therapy: Cortisone, Hypotensive, Digitalis, Other Drug Idiosyncrasy
Recent food or fluid by Mouth? Yes..... No..... Height:..... m. Mass..... kg. Blood Booked.....
Blood Pressure..... /..... mm.Hg. Haemoglobin..... Gms. %
Heart..... Lungs.....
Chest X-Ray E.C.G.....
Other Pathology or significant data.....
.....
.....
Anaesthetic Risk: Grade: 1....., 2....., 3-4....., Emergency.....

PRE-ANAESTHETIC MEDICATION

Drug	Dose	Route	Time	Given by	Time
1.....			at		at
2.....			at		at
3.....			at		at

Ordered by..... Signed.....
Date Date

ANAESTHESIA

Anaesthetic start a.m./p.m. Finish a.m./p.m.
Induction Agent:.....
Anaesthetic Agents:.....
Aduvant & Analgesic Drugs:.....
Relaxant Drugs:.....
Relaxant Antidote:.....
Respiration: Spontaneous/IPPV, Humidification.....
Circuit: Magill/Circle CO₂ Absorption/Nonreturn/Other.....
Endotracheal Tube: Type..... Size..... mm. Per Mouth/Nose.....
Laryngoscopy..... Oropharyngeal Airway..... Pharyngeal Pack.....
Special Techniques:.....
.....
Local Anaesthetic Techniques: Spinal. Caudal. Topical. Epidural. Nerve block. Infiltration.

Monitoring: Arterial BP..... Cuff/Arterial Canulation.....CVP.....
ECG.....Temperature.....Other.....

Details:

Difficulties.....

I.V. fluids.....ml.....via.....vein

Whole blood.....ml. Group.....Rh.....Bottle.....

.....ml. Group.....Rh.....Bottle.....

VP	BP.	Record:	OP.	O	B.P.	V	PULSE	•	RESP.	O	Temp.
cm	mm.					Λ					C
H ₂ O	Hg.										
200											0
180											-40
22●- 160											-39
20 - 140											-38
18 - 120											-37
16 - 100											-36
14 - 90											-35
12 - 80											-34
10 - 70											-33
8 - 60											-32
6 - 50											-31
4 - 40											-30
2 - 30											-29
0 - 20											-28
Anaesth. Drugs											
Relaxant											
Adjuvant											
Other											
Blood out											
Urine out											
Blood in											
Fluid in											
Other											

At conclusion: B.P...../..... mm.Hg. Headlift.....

Pulse rate..... per min. Respirations..... per min.

Patient Awake..... Asleep..... Unconscious..... Deeply unconscious.....

Signature..... Date.....

POST-ANAESTHETIC

Complications None.....Minor.....Major..... Details.....

INSTRUCTIONS AND OUTSTANDING WORK-UP

Complete by hand when label not available

1998

ANAESTHETIC OPINION/PLAN

ASA STATUS

DIAGNOSIS

Consent

PROPOSED OPERATION

Surgeon

RELEVANT HISTORY

Last oral intake?

Smoker?

ALLERGY?

Previous Anaesthetics

Problems

Medication

EXAMINATION

Wt

Ht/BSA

INVESTIGATIONS

General

ECG

Airway:

Teeth

Cardiovascular

BP

HR

Pulmonary Function Test

Pre

Post

Predicted

Respiratory

FEV₁

FVC

Ratio

BLOOD INVESTIGATIONS

OTHER INVESTIGATIONS

Hb

Na+

pH

Platelets

K+

pO₂

INR

Urea

pCO₂

Creat

BE

Glucose

SB

FiO₂

PRE-ANAESTHETIC MEDICATION

Given by

Time

Checked by

Time

Date

Drug

Dose

Route

Time

Name & Signature

Name & Signature

1. at

2. at

3. at

4. at

Ordered by: Signature: Print Name:

Date:

ANAESTHETIC RECORD

Status at Conclusion		Difficulties/Comments
O.C.	B.P.	Signature Date
Headlift	H.R.	
Expiration	Sat	

										FIO ₂	
										Min Vol	
										Capnog	
										Saln	
										Temp	
										pH	
										PCO ₂	
										PO ₂	
										SB	
										BE	
										Hct	
										Na	240
										K	
										Gl	220
										Time	
											200
											180
											160
											140
											120
											100
											80
											60
											40
											20
										CVP	

[illegible]

POSTOPERATIVE PROBLEMS

Oxygen

Nurse's Signature:.....

anaesthetic costing^{p40, 28} It also provided an early warning system for drug abusers. A member of the staff who had developed an addiction to methamphetamine was only detected when she was assigned to theatre duties and our use of one of these drugs suddenly spiralled."

Professor Bull when interviewed, had this to add "When Dr Jones took over as Head of the Department, he laid down very firm criteria as to what drugs should be used and which techniques to employ. These were based on his background of American training – so different at that time from the British and concerned mainly the use of muscle relaxants, which he attempted to ration severely and discouraged the use thereof except in small doses.²⁹ This, no doubt, was influenced by the well known article on the dangers of relaxants by Beecher and Todd.³⁰ This study provided the motivation for Gaisford Harrison's study of Anaesthetic Associated Deaths^{p112a, p112b, p112c, p112d, p112e, p112f, p114, p184, p315, p316, p427} which was strongly supported by Buck.

On the other hand, members of the Department who had been to the United Kingdom were influenced by the Liverpool school under the direction of Cecil Gray,³¹ who practiced the liberal use of relaxants and analgesia without volatile anaesthetic agents. So a conflicting situation arose, Jones' draconian protocol was not lifted but many members believing in the UK school used their relaxants in large and effective doses regardless of the protocol. This required a certain amount of subterfuge which Buck Jones may or may not have known about. If he did know, he said nothing. Derek Jowell admitted to quietly smuggling in ampoules of 'scoline'³² into theatre.

With an increasing clinical load in the theatres, anaesthetic trainees were being employed on a temporary basis, filling in vacant trainee or even consultant posts of other medical divisions. This was done with the co-operation of the Medical Superintendent Dr Cloete and enabled the Department to cope.

The Anaesthetic Refresher Course

An innovation in 1954 was the Refresher Course designed to assist general practitioner anaesthetists. The need for this early exercise in 'continuing medical education' was brought to the

attention of Dr Jones by senior part-time surgeon Mr WB (Bill) Schulze. A week long course of lectures and practical demonstrations was planned and an advertisement placed in the *South African Medical Journal*.³³ The response was good but entry was restricted to the first 20 applicants. Drs Harrison, Ozinsky and Atkins provided model contributions on assigned topics and the senior trainees provided 'hands on' experience.

As Mr Len Read, the assistant Registrar in charge of University Finances was involved with this course, and as a result of its success, an official Departmental account with the University was created. To this was added casual donations and money from research grants for which the Department qualified.

MASTER OF MEDICINE (Anaesthetics) UCT

During 1953 two candidates from Johannesburg had applied to write the MMed (Anaes) examination rather than their Alma Mater's DA. Each was given a list of 3 dissertations from which to choose one. These could and did include individual research work or be based entirely on individual research. Both had submitted these dissertations and both were accepted but it appears that only one undertook the remaining requirements.

As a result of this experience, Dr Jones persuaded the Faculty of the University that the importance of legitimacy was paramount and that external examiners had to be involved, irrespective of the University's objection to costs of appointing an examiner for a mere 2 candidates. Dr OVS Kok³⁴ of the University of Pretoria was nominated and accepted. Later Dr John Nicholson³⁵ from Witwatersrand University assisted and in 1956 Dr Tom Fuller was external examiner as he was not involved in the candidates training. The format for the written examination was MCQs. This had been tried as a class test at undergraduate level and proved successful.

M Med (Anaes) UCT

1953 The single candidate was unable to satisfy the examiners.



27 The first three MMed (Anaes) UCT graduates Dec 1955

Drs Les Meyerowitz, Peter Maytom and Leah Atkins

- 1955 Dr PHB Maytom
The effect of carbon dioxide in anaesthetic atmospheres.
- 1955 Dr L Atkins
The complications and sequelae of spinal anaesthetics.
- 1955 Dr LS Meyerovitz
The role of encephalography in clinical human anaesthesia. * p 34
- 1956 Dr NW Schmaman
The effects of anaesthesia on renal function.
- 1957 Dr HJ Schmidt
A history of anaesthesia in South Africa. * p 45
- 1957 Dr JC Woeke
The neurophysiology of pain.
- 1957 Dr CGG du Plessis
The organisation and planning of a department of anaesthetics for a 600 bedded hospital.
- 1957 Dr M Friedland
Pulmonary physiology and its application to anaesthesia.
- 1957 Dr JA Pretorius
The physiological and pathological alterations to body mechanisms during acutely induced hypotension. *
- 1958 Dr LR Bingham
The pathogenesis of cardiac arrest during anaesthesia.
- 1958 Dr PH Malherbe
Explosions in anaesthetic practice.
- 1959 Dr PJ Horrigan
Anaesthetic and post-anaesthetic respiratory tract physiology.
- 1959 Dr GJ Rossouw
Controlled respiration. Its effect on the cardiovascular system.

- 1960 Dr HJ du Toit
The newer anaesthetic ethers.
- 1960 Dr S Hoffman
Muscle relaxants. An historical review.
- 1961 Dr AMQ Whitaker
Report of 1500 chloroform anaesthetics administered with a precision Vaporiser. *
- 1961 Dr W vdM Lambrechts
Modern theories of anaesthetic action.
- 1961 Dr PA Vis
The challenge of tissue anoxia. *
- 1962 Dr CJ Dekenah
The electrical conduction of nerve impulses.
- 1962 Dr MJ Rorke
Geriatric anaesthesia.
- 1962 Dr TM Botha
The mechanisms of production, diagnosis and treatment of unintended alterations in blood pressure during anaesthesia.
- 1963 Dr JA Collie
A review of epidural anaesthesia.
- 1963 Dr AGCB Anderson
The myoneural junction.
- 1963 Dr JME du Plessis
The use and abuse of blood transfusion during surgery and anaesthesia. *
- 1964 Dr CL Wicht
Hiccoughs : Their cause, mechanism and treatment.
- 1964 Dr AL Burman
On some complications of endotracheal intubation. * p⁹⁰

1964 Dr HJT Morkel
Penthrene - An evaluation.

1964 Dr RP Smithson
Outpatient anaesthesia.

1965 Dr F Fiser
The scope of a pressure chamber in medicine.

1966 Dr ME Massing
Electro - anaesthesia.

GAP

1987 Dr CJ Nussbaum
The fat embolism syndrome. *

1987 Dr JR Thorburn
The use of glycopyrrolate for the control of secretions during fiberoptic bronchoscopy. *

1990 Dr GA Irving
A survey of blood and blood component usage amongst South African anaesthetists in a teaching hospital. * p 362

1992 DR RL Rund
A study of elective surgical blood usage at Groote Schuur Hospital. * p 380

1996 Dr TG Ruttman
Haemodilution and coagulation. * p 433a, p 433b, p 434, p 435, p 437

1999 Dr BCJ Reidel
The use of thoracic epidural anaesthesia for coronary artery bypass graft surgery? *

1999 Dr AR Reed
Magnesium sulphate reversal of established bupivacaine electrophysiological cardiotoxicity. *

1999 Dr P Whitehead
Survival after local anaesthetic overdose: A comparison of the success of resuscitation after established cardiotoxicity by ropivacaine or bupivacaine.

2000 None.

* includes original research.

The reason for the gap between the years 1966 and 1987 is based on the fact that the new Fellowship of the Faculty of Anaesthetists of the College of Medicine of South Africa had been introduced and was similar to the overseas anaesthetic fellowship. In the mid eighties the rules in the granting of subsidies by the government, to the universities, had changed and they were now dependent on the number of candidates obtaining a degree directly from the university concerned, rather than purely the number of postgraduate students registered. Few candidates, in fact, opted to satisfy the requirements for both the MMed (Anaes) and the FFA. Since 1968 the examination structure for the MMed (Anaes) had also been altered and the SAM&DC regulations were changed to ensure postgraduate equivalence with other universities

ANNUAL REPORTS OF THE DEPARTMENT

The very first Annual Report of the Department of Anaesthesia^{p31} was published in June 1954 for the year 1953 and contributed by Drs CS Jones and AB Bull. This was a requirement for the Joint Staff Agreement. It covered anaesthetic services provided at Groote Schuur Hospital, the Peninsula Maternity Home, Mowbray Maternity Hospital and 2 regular weekly sessions at the Hope Street, Municipal Dental Clinic.

It was found expedient to divide full time staff into 2 groups: Each group is responsible for anaesthetic services to particular surgical units. Postgraduate trainees are given the opportunity to work under supervision and gain experience.

During the year cylinder banks were installed for oxygen and nitrous oxide and these gases were piped to almost all locations where an anaesthetic machine was situated. Facilities for postgraduate instruction improved and weekly and monthly meetings were held at which papers were presented by a member of the full time staff. A successful Winter Seminar Course was introduced for the first time during the months of June to August and a Refresher Course for GP's was being prepared.

Volume of anaesthetics

A total of 14,966 anaesthetics were given in 1953, the bulk at GSH and some at the two maternity hospitals. In addition there were 1,179 anaesthetics at the dental clinic, bringing the total to 16,145.

ANAESTHETICS ADMINISTERED FOR SURGICAL, OBSTETRICAL AND MEDICAL PURPOSES (EXCLUDING DENTALS) TABLE I

YEAR	TOTAL ANAES	% INCREASE
1945	6,710	-
1946	7,340	9.4
1947	7,964	8.5
1948	8,946	12.3
1949	9,847	10.0
1950	10,724	8.9
1951	11,891	10.8
1952	13,216	11.1
1953	14,966	13.2

TABLE II SHOWING ANAESTHETICS FOR VARIOUS SURGICAL SERVICES

THEATRE	1952	1953
General Surgery	4,519	4,499
Obstets & Gynaecology	2,188	2,622
ENT	2,153	2,573
Casualty Surgery	1,573	1,943
Orthopaedics	1,534	1,621
Urology	478	674
Ophthalmology	461	455
Neurosurgery	310	411
Medical etc	*	168
Dental	*	1,179
Total	13,216	16,145

TABLE III ANAESTHETICS ADMINISTERED FOR VARIOUS OPERATIONS 1953

Gastric resection	277	Tonsillectomy etc	2,374
Biliary system	166	Ophthalmic	455
Large bowel & rectum	29	Bronchograms	72
Cardiac	39	Medical procedures	96
Intrathoracic	81	Casualty surgery	1,943
Major jaw & tongue	14	Nephrectomy	42
Oesophagectomy & o-enterostomy	17	Transabd urolog. surgery	191
Plastic	428	Transurethral surgery	97
Lumbo-dorsal sympathectomy	17	Other urolog. surgery	344
General surgical	3,431	Hysterectomy	318
Intracranial	222	Vesico-vaginal fistula	18
Other neurosurgical	189	Colpoperineorrhaphy	146
Open bone operations	566	Other gynae operations	1893
Manipulations	1,055	Caesarian sections etc	237
Mastoidectomy	91	Dental extractions	1,179
Fenestration	5		
Nasal sinuses	103	Total	<u>16,145</u>

TABLE IV MORTALITY

Under section 86, of the Medical, Dental and Pharmacy Act (no 13 of 1928) deaths occurring while the patient is under the influence of an anaesthetic or deaths to which the anaesthetic might be a contributory factor, are notifiable as deaths not due to natural causes, and do become the subject of a court of inquiry. During 1953 a total of 22 deaths within the hospital fell in this category. Of this number, 11 occurred while the patient was on the operating table, and the remainder at varying intervals after the return of the patient to his bed. These are listed in Table IV; some were still under review.

Died in theatre		Died postoperatively	
Child	Intestinal obstruction	Adult	Lobectomy
Adult	Intestinal gangrene	Child	Blalock operation
Adult	Hysterectomy	Child	Herniotomy
Adult	Gastric resection (haematemesis)	Child	Pituitary tumour
Adult	4 th Ventricle tumour	Adult	Nasal polypectomy
Adult	Laparotomy	Adult	Oesophagectomy
Adult	Mitral valvotomy	Adult	Thoracoplasty
Adult	Intestinal gangrene	Adult	Gastrectomy (haematemesis)
Adult	Pulmonary valvulotomy	Adult	1 st Stage lumbo-dorsal Sympathectomy
Child	Atresia of bile ducts	Adult	Acoustic nerve tumour
Adult	Thoracotomy - traumatic		

The Second Annual Report ^{p 31} of the Department of Anaesthesia was published by Drs CS Jones and AB Bull in April 1955, for the year 1954.

It was in similar format to the previous year, except for the updated figures, which made for easy comparison. The grand total of anaesthetics (including dentals) was 17,155 which represented an increase of 6.3% over the figures for 1953. While the difference was not impressive in numbers, one must note that the nature of operations was changing – procedures were more complicated and of longer duration.

There was a considerable degree of flux, particularly amongst trainees, but the numbers remained as before. Obstetrical emergency services were now extended to the New Somerset Hospital. An Anaesthetic Record Card had been developed and introduced to improve the teaching of anaesthesia and record keeping. A Refresher Course for GP's was held from 12–15 April 1954 with great success and it was to be a regular feature henceforth. Examinations for the MMed (Anaes) were held in June and November.

A system of cost accounting has been introduced and a preliminary survey indicates a running cost of about 30 shillings per anaesthetic. (20 shillings = 1 pound sterling) ^{p 40}

The Third Annual Report ^{p 41} of the Department of Anaesthesia was published in March 1957, for the year 1955, by Drs CS Jones, AB Bull, GG Harrison and L Atkins.

Once again the format was the same as in previous years, except for the revision of figures. Two temporary posts were added to the Department for the increased volume of work. The grand total of anaesthetics administered was 18,371, a direct increase of 7.1%. A table was provided for two groups :

One for anaesthetics of longer than 1 hour duration and one for shorter anaesthetics. For the longer and more major operations there was an actual increase of 19.3% while there was an increase of 8.1% for shorter operations, thus there was an increase of 27.4% on the time spent in administering anaesthetics over the figure in 1954. This did not include the other subsidiary services such as pre-anaesthetic examination, oxygen therapy service and post-op followups.

Difficulties were experienced in ensuring regular and expert care and servicing of anaesthetic machines and oxygen therapy equipment.

"In accepting for publication this Third Annual Report, the Editor of the SAMJ warned that this was the last submission of its kind that he was prepared to publish. I regretted this decision but there is little that one can do in the face of editorial censorship. Our embryo efforts at establishing publicly transparent clinical audit studies as contributions to peer review were too far in advance of conventional wisdom!"³⁶

The next Annual Report submitted by Dr Jones was for the year 1960 and appeared in the combined Annual Report of the Groote Schuur Hospital Group in 1961. These reports started in 1960. Henceforth all Annual Reports of the Department appeared in this publication.

DR CS JONES - *SOME REMINISCENCES*³⁷

" The line of command in the University ran from the Council through the Vice-Chancellor (Dr TB Davie in 1952) and the Senate to the Board of the Faculty of Medicine and thence to the Heads of Departments. Although Anaesthetics had been constituted as a distinct Department of the University in 1937,³⁸ as far as I could determine its Head had never been given a seat on Faculty. But Dr J Muir Grieve, Head of the Radiology Department, managed to have this anomaly corrected and I was henceforth able to attend Faculty meetings of the Executive Committee ."

"This was a useful privilege for I immediately learned that there was a vast number of people only too ready to demonstrate that they knew exactly how to run an anaesthetics department. I was able to avoid

unwanted outcomes by early and appropriate action. Those who persisted in trying to interfere soon learned that I too could make inappropriate suggestions about their own affairs.”

“By the time I had gained a seat on the Board, Professor Marinus van den Ende ³⁹ was the Dean. He had been particularly supportive of my own efforts during the crowded early years. When Professor James Louw ⁴⁰ interfered directly in clinical assignments in the Department of Anaesthesia, I appealed to the Dean. His response was immediate and positive. James Louw was excellent in his own sphere of gynaecology and obstetrics but inclined to be overbearing and meddlesome.”

“The Professor of Surgery, when I took over from Dr Fuller, was JFP Erasmus.⁴¹ His was the first full time appointment to the Chair of Surgery. He resigned his Chair in 1955 and Dr Jannie Louw,⁴² the more senior of the two deputies was appointed to this vacancy. Dr Sonny du Plessis stayed as head of the Firm on C Floor until he moved to Johannesburg where he was the first candidate to obtain the Ch.M degree, occupied the Chair of Surgery and became successively Dean of the Faculty and then Principal and Vice-Chancellor of the University of Witwatersrand”. He died in 1999.

“In 1952 I had not been particularly impressed by Jannie Louw’s operating abilities, but time and the demands of paediatric surgery, ⁴³ one of his personal interests, changed that and he became a deft and decisive surgeon. Jannie, a man of small stature, demanded a very high level of performance from all his junior staff so that only the fittest and most long-suffering could endure their apprenticeship in his firm, He preferred that they should display a degree of sycophancy. Love of sycophancy was a trait more evident in James Louw. This is not a trait that I in any way admire.” ⁴⁴

“From the other professional staff I received much help and few hassles. Professor JG Thomson ⁴⁵ (Pathology) raised difficulties when I applied for long leave in order to take up my Cecil John Adams Travelling Fellowship. I was forced to take a hard line, but to my surprise I was supported by Jannie Louw”.

LABORATORY AND OFFICE SPACE

Professor JT Irving ⁴⁶ (Physiology) was particularly helpful. Dr Jones was made welcome into his department and he made some personal space available for him on the ground floor at the back of the building. The room was fitted out as a laboratory and Buck held the key. Its occupation signalled acceptance of anaesthesia into the academic sphere. He was invited to join Professor Irving's staff at tea when he was able to manage a morning visit. Thus Dr Jones came to be known and accepted by Professor Zwarenstein ⁴⁷, Dr Norman Sapeika ⁴⁸, Dr Teddy Keen ⁴⁹ of anatomy and others. He strongly held the belief that anaesthetists were, in essence, practising applied physiology.

It was in this small laboratory that the first three-channel mobile electroencephalograph was constructed by George Sweeney, then a medical student, approaching his final and holding the post of demonstrator in physiology. George was also an electronics whizz kid and enjoyed piecing together any sort of electronic equipment. Once completed, the apparatus was transferred to GSH and used in Dr LS Meyerowitz's study of the effect of gallamine triethiodide on the EEG in clinical practice. ^{50, p 34} " Dr Atkins and I explored its use to record ballistocardiograms with the aim of trying to determine the cardiac output during anaesthesia but this proved fruitless." Ironically, with the changeover to the New GSH in 1989, the Department of Anaesthesia had to vacate both its laboratory and Professor Gaisford Harrison's academic office (in use from 1975), which was placed on the fifth floor of the HD&OT Building (later named the Anglo De Beers Christiaan Barnard Building). The Department then moved back to this very same laboratory in the Physiology building in 1998.

In 1952 the Department of Anaesthesia had the use of a small room next to the changeroom of the main surgical theatre suite. This contained a small desk and a couple of government issue chairs. There was a large bookcase holding Dr Fuller's personal medical library, a few old issues of medical journals and much empty shelving. The Hospital Secretary found a larger desk and an ageing typewriter and later assisted in handing over a small room across the corridor which had been fitted out as small laboratory. This was used for preparing and randomising new drug samples, for clinical trials. Later, a small office in the Department of Surgery, adjacent to the Urology Department on B Floor was allocated and a part time

secretary was supplied by the University. She was subsequently replaced by a Provincial Administration or hospital secretary.

When space in the formal office became limited, because the numbers in the Department had increased, the Hospital Secretary once more, found some space. This was an unused room, long and narrow below the upper rows of the E Floor lecture theatre, with a stepped ceiling and included a laboratory bench.

Staff leave

“In Dr Fuller’s time I had already noted that there were difficulties in arranging proper leave for the trainees. Regulations required that any incumbents of any post at this level should serve a full 12 months before they could be granted the annual quota of 4 weeks leave on full pay. In practice this led to many of them applying for leave simultaneously. Leave had to be refused or theatres had to go unserved.. I initiated formal motivation that conditions of leave for this group be officially altered so that leave could be scheduled without disruption to the service. While the suggestion had to follow the full tortuosity of both the University and the Province, it was accepted and remains so to this day.”⁵¹

CARDIOTHORACIC ANAESTHESIA – THE BEGINNING

Prior to 1957, cardiothoracic surgery was restricted to the ligation of patent ductus arteriosus; closed mitral valvotomies; drainage of lung abscesses /empyemas; drainage of pericardial effusions and pulmonary valvotomies.

Dr Walter Phillips, head of the Cardio-thoracic Surgery Department, appointed in 1949, had been to America on a short visit, in about 1956 to learn from Lillehei⁵² in Minneapolis. “He brought back with him a Cooley-type Pump Oxygenator⁵² and an extensive manual of instructions, but had no personal experience with it in an operating theatre.”

“Nevertheless, in 1957 when a ‘suitable’ patient presented herself, the apparatus was brought into use. Dr Gaisford Harrison was on duty in the theatre at the time and gave the anaesthetic. This was the first

open heart operation performed at the hospital. The whole affair was poorly staged and at the earliest opportunity after Gaisford had reported to me, I bluntly told Jannie Louw that as Professor of Surgery, he should place a moratorium on these efforts until such time that a thoroughly trained team had been assembled and had repeatedly rehearsed in the research facilities of the animal house.”⁵⁴

The patient referred to here, was in fact a very unsuitable Ms M P⁵⁵ aged 11 years with a Tetralogy of Fallot, who was operated upon two years earlier for a pulmonary valvotomy and who was taken to theatre by the surgeon to a situation of total unpreparedness. Surgery was planned for the correction of the tetralogy. Anaesthesia was provided for by Drs Gaisford Harrison and Tom Voss and was relatively untoward. The surgeons were Drs Walter Phillips and Dennis Casserley and the bypass pump was operated by Rodney Hewitson (later to be Head of Thoracic Surgery). Femoral vein to Femoral artery bypass was established. Following the opening of the right ventricle, there was profuse uncontrollable haemorrhage because of the overriding aorta/pulmonary artery over the ventricular septal defect. Rapid exsanguination was followed by massive air embolism. The patient died within 10 minutes of going onto bypass. It was a total disaster.

“Jannie listened very carefully and acted promptly. But his acceptance of my advice meant that I too would have to participate. My solution was to rotate my anaesthetic staff on six month long assignments as members of the surgical research team. If my memory is correct, Dr Joseph Ozinsky was the first to draw this assignment. Dr Harrison followed him.” Both, in fact, worked on the early animal experimentation. “Thereafter the assignment went according to seniority and personal choice. Not all anaesthetists wished to participate in anaesthesia for research in animals.”

Note: There was a different approach with Chris Barnard. After spending two years in Minneapolis, USA and operating on about 20 dogs in the laboratory in Cape Town, only then did he venture to do the first simple atrial septal defect repair. For the first number of cases they even had EEG monitoring of cerebral function. But electrical interference was a great hindrance to its use.

"Dr Velva Schrire⁵⁶ headed the Cardiology Clinic; so in 1953, I suggested to him that it would be of great assistance to my anaesthetists if, when one of his patients was scheduled to have mitral valve surgery, he could find it possible to attend and use his ECG equipment to monitor the patient's cardiac status."⁵⁷

"The triple academic success in the year 1955 of the three MMed (Anaes) graduates in the Department, marked the end of the campaign to establish the Department as a training ground of choice for aspirant anaesthetists in South Africa. The ratio of applicants to advertised positions was approaching 10 to 1 and the academic achievements of the best of these were increasingly impressive. We find that specialists posts were now filling up with permanent appointees and several of the applicants were out of Cape Town."⁵⁸

OXFORD AND THE NUFFIELD DEPARTMENT NUFFIELD CLINICAL ASSISTANTSHIPS

In 1954 the Nuffield Clinical Assistantships, open to the British Commonwealth and therefore to South Africa, were advertised. There were 2 Assistantships, each open to the three disciplines of anaesthesia, dermatology and medicine, in competition. Buck Jones encouraged Arthur Bull to apply and in this he was successful. Arthur was granted unpaid leave for the two years duration of tenure at the Nuffield Department of Anaesthetics, Oxford, led by Professor Macintosh.⁵⁹

THE NUFFIELD FOUNDATION⁶⁰

In 1943 Lord Nuffield (Mr William Morris of Morris Motors Ltd) set up one of his last and major trusts, endowed by him with shares worth £10 million, to be known as the Nuffield Foundation. Its purposes reflect the interests he had all his life: the terms were, however, drawn more widely than other trusts, to reflect his interests not only at the time of giving, but in many years to come, in conditions after the war.

The objects of the Foundation are stated as such charitable purposes as

1 the advancement of health, and the prevention and relief of sickness....in particular...by medical research and teaching and by the organization and development of medical and health services....;

- II the advancement of social well-being...in particular...by scientific research and the organization, development, and improvement of technical and commercial education including the training of teachers and provision of scholarships and prizes;
- III the care and comfort of the aged poor;
- IV the advancement of education;
- V such other charitable purposes as shall be declared in writing (a) by Lord Nuffield in his lifetime, and (b) after his death by all the Ordinary Trustees and Managing Trustees.

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Arthur Bull, having been granted unpaid leave for 2 years, returned to GSH in 1956. He had this to say, "The time in Oxford was to prove of great value to the Department in Cape Town, mainly in providing international contact and an exchange of ideas with the experience gained in the introduction of halothane into the anaesthetist's then limited list of drugs. Contact was also made with Dr John Spalding⁶¹ who started an Intermittent Positive Pressure Ventilation Unit in Oxford which led to the development of the 'East Radcliffe Pump'." This was a pressure preset, time cycled ventilator. An electric motor drives a four-speed bicycle hub through a gear box.^{62, 63, 64}

"There was also a period spent on secondment to the Department of Physiology where in conjunction with Dr Paul Glees, we did an investigation into some of the effects of lignocaine and succinylcholine on the EEG of cats. Experience in the use of endotracheal tubes as well as 'flaxedil'⁶⁵ was also obtained at the thoracic surgical unit and in neurosurgical anaesthesia at the theatre of Dr Pennybacker. In the middle of 1956, I received a letter from Professor Jannie Louw to say that the surgical side of the Red Cross War Memorial Hospital would soon be open and that he felt that if there was little more to be gained in Oxford, I should immediately apply for the post of Anaesthetist at Red Cross." The Head of the Anaesthetic Department there was to be on the same grade as the Head at Groote Schuur Hospital and that the Department was to be another teaching facility in the Joint Staffing stable. The trainees would become part of a pool and would be rotated through both hospitals to give them a wider experience. "I decided to cut short my stay in Oxford by a few months and return to Cape Town".⁶⁶

THE START OF THE HALOTHANE STORY

"Towards the end of my (AB Bull) time in Oxford, in 1955, Professor Macintosh approached me and said that a new non-explosive anaesthetic (NEA) developed by ICI (Imperial Chemical Industries) was being sent to Professor Burn, the Professor of Pharmacology, for further investigation and would I please

undertake to anaesthetise some dogs for these tests. Until then, it had only been administered to small laboratory animals by Raventos ⁶⁷ and Suckling ⁶⁸ who had synthesised it. Off I went to the Pharmacology department with HG Epstein ⁶⁹, the physicist. Raventos had brought down from ICI an old fashioned 8oz bottle with a cork stopper, labelled NEA for 'non-explosive agent' which he gave to Epstein with information about its formula and physical properties. We were sworn to secrecy by ICI to avoid leakage of information to the competition. The drug didn't yet even have a name." ⁷⁰

"Epstein then set to work making large bags of NEA vapour. He initially used polythene bags but they allowed too much diffusion and upset the concentration of the contents. He then changed to nylon which proved impermeable to NEA vapour. Thus armed with vast nylon bags of various concentrations from 1-5% in air, and using a one-way low resistance valve from the old ESO ⁷¹ chloroform apparatus, we started to see what would happen. My job was mainly to observe and comment on the clinical characteristics of the dogs while Professor Burn infused various concentrations of adrenaline and noradrenaline into the anaesthetised dogs."

"From the start, I was impressed by the smooth inhalation induction of anaesthesia that was possible. It soon became evident that the optimum concentration for induction in dogs via the home-made facemask we used was between 2-3%. After a few days, I noticed that I was becoming drowsy over the Schuster ⁷² exhalation port and that there was a smell of bromide around. This was duly reported to Raventos who said "yes, possibly bromide molecules were becoming detached from the exhaled gas". He recommended that a stabiliser be added to the drug. Epstein also rigged up a scavenging system using a vacuum cleaner, as the pharmacology laboratory in which we worked was very poorly ventilated."

"After we had experimented on ten dogs over a couple of weeks, Burns seemed satisfied that he could report back to the Medical Research Council on whose behalf he was doing the study. For my part, I recommended that NEA had superb handling characteristics; it provided both smooth induction and steady maintenance. Because of its potency, I recommended that it was essential, if clinical trials on patients were to be contemplated, that there should be a temperature compensated vaporiser calibrated from 1-4%. Macintosh came in for some of the latter dog experiments and concurred. Epstein then started to modify the EMO (Epstein Macintosh Oxford) ether vaporiser to deliver this new agent, now called halothane."

"At this stage, my time at Oxford came to an end but I later heard that clinical trials had been authorised and that Michael Johnstone ⁷³ a Mancunian, who was close to ICI headquarters, was to be responsible for them. After returning to South Africa, I was dismayed to hear that Michael Johnstone had requested a vaporiser calibrated up to 10%. Fortunately, this didn't come to reality and the 4% model became standard."

"This was an exciting episode in my career: I remember most vividly how Raventos produced a nondescript little medicine bottle labelled NEA, told us to observe secrecy and said that 'each molecule of this precious stuff had been tailor made and so, please don't waste it.' "

"After my return to South Africa, I was in charge of anaesthetics in the new Red Cross War Memorial Children's Hospital in Cape Town and received a few bottles of halothane together with a fluotec vaporiser bearing the serial number 28. (This Fluotec No 28 is now part of the anaesthetic museum collection in the Department and had been cross sectioned to allow viewing of the interior mechanism.) Dr John Russell ⁷⁴ of Port Elizabeth, a day's journey from Cape Town, and I were the first two in our country to use the drug. This was in 1956. Compared to the elaborate protocols that surround the acceptance of any new drug today, the introduction of what became the most popular inhalational anaesthetic in the world, was unbelievably simple."

Dr HD O'Brien, ⁷⁶ who followed Arthur Bull as Nuffield Dominion Clinical Assistant, 1956-1957, at the Department in Oxford comments:

"It had been appreciated as early as 1932 that fluorination of compounds might produce non-combustible, stable, non-toxic anaesthetic agents. The Second World War stimulated research into fluorine compounds because, among other things, hydrogen fluoride was used in the production of high octane aviation fuel."

In 1951 Dr CW Suckling, of the Research Department of ICI General Chemicals Division, near Manchester, started the search for a new non-flammable anaesthetic agent, culminating in the development

of halothane.In 1956, there was no such thing as an Ethics Committee. In Oxford, practising anaesthetic techniques on one's consenting colleagues or one's self was quite accepted at that time...⁷⁷

Note: While Jennifer Beinart, who incidentally ^{was} is the daughter ^{in-law} of Professor Beinart, formerly Professor and Dean of Law of the University of Cape Town, in her 'A History of the Nuffield Department of Anaesthetics – Oxford 1937-1987' makes mention of Nuffield Dominion Scholars * from South Africa, Arthur Bull is not mentioned by name although his successor Dr HD O'Brien is. Arthur Bull's contribution is therefore not recorded, however, Beinart makes allowance for this omission – 'Part of the motivation for the development of this new agent – whose history must be told more fully by others - was of course the desire to find a non-flammable anaesthetic agent'.⁷⁸ This part of the history has now been included in *World Anaesthesia* in 1997.^{75, 76}

- see notes on Nuffield Clinical Assistantships further on.

University of Cape Town

Notes and references:

- 1 John Silas Lundy was born in Inkster, North Dakota on 6 July 1894 and graduated from Rush Medical College in Chicago. He became Head of the Department of Anesthesiology at the Mayo Clinic in Rochester, Minnesota in 1924. He retired from the Mayo in 1959 and was a pioneer in graduate training of young physicians in the field of anaesthesiology and was a founder of the American Board of Anesthesiology in 1937. He served here as President until 1942. He contributed more than 600 papers to the anaesthesiology literature and was the author of the monograph *Clinical Anesthesia* which was the first authoritative volume in the field.
It was John that introduced the concept of 'balanced anesthesia' in 1926. He was also responsible for establishing the first blood bank in the United States in 1935 and in 1942 opened the first postanesthesia recovery room at St. Mary's hospital, Rochester. He also introduced sodium pentothal into clinical anaesthesia in 1934.
Corssen G. John S Lundy: Father of Intravenous Anesthesia. *Anaesthesia Essays on its History* Ed. J Ruprecht, MJ van Lieburg, JA Lee, W Erdmann. Springer. 1998 : 42-44
Lundy JS. Intravenous Anaesthesia : Preliminary Report of the Use of Two New Thiobarbiturates. *Proceedings of the Staff Meetings of the Mayo Clinic* 1935; **10** (August 21): 536-543. Also in Lundy JS. Clinical Introduction of Pentothal Sodium. *Foundations of Anesthesiology*. Faulconer A jnr., Keys TE. Volume **II** Charles C Thomas, USA. 1965: 984-994. Library of Congress No. 65-11304.
- 2 The new Mayo Clinic was opened in 1928 by the brothers William James and Charles Horace Mayo in Rochester, Minnesota. They also established the Mayo Foundation. More than two years under construction and fifteen stories tall, the clinic cost the Mayo Properties Association three million dollars.
- 3 The Addington Hospital, formerly the Natal Government Hospital of 100 beds was founded in Durban in 1878. The Natal Government Hospital in turn had replaced the Bayside Hospital which had served for seventeen years.
- 4 Sam Galloon was a member of the anaesthetic department in Cardiff, Wales, registrar 1951-53; senior registrar 1953-54 and consultant from 1957 onwards. He came to Addington Hospital and later to the Groote Schuur Hospital in exchange with Dr Jan Pretorius for a period of one year from 1961-62. Ref. The Department of Anaesthetics Cardiff 1947-1968. PW Thompson. 1968
- 5 Professor William Woolf Mushin, first Professor of Anaesthetics at the Welsh National School of Medicine from July 1947. It was only in 1946 after World War II, that agreement was reached that a Department of Anaesthetics should be created with the appointment of an independent Lecturer in Anaesthetics, who would be director of Anaesthetics in the Clinical Institutions of the Welsh National School of Medicine. Prior to this appointment, he was First Assistant in the Nuffield Department of Anaesthetics in the University of Oxford.
- 6 Jones CS. A Personal History 1998: 6
- 7 Ibid. : 6
- 8 Dr H de Villiers Hamman was a registered neurosurgeon who had settled in Cape Town in 1946. He was appointed to the newly created post of neurosurgical registrar in March 1948. In 1949 this post was upgraded to that of honorary neurosurgeon. It was he that motivated for the restoration of the J4 theatre as a neurosurgical theatre which was opened on 15 August 1948.
- 9 Professor JC (Kay) de Villiers, Head of the Neurosurgical Department, was appointed associate Professor in 1972 and later first incumbent of the Helen and Morris Mauerberger Foundation Chair of Neurosurgery until his retirement in December 1993. In 1984 he was seconded to and was Chairman of the Official Committee looking into the future of Medical Education in South Africa. As mentioned, he is an authority on the history of medicine during the Anglo Boer War 1899-1902. A man of varied interests, a much sought after lecturer, he was instrumental in the establishment of the Cape Medical Museum. An erudite man of impeccable charm, he was a friend who had commanded a great deal of respect from the entire anaesthetic department. His department celebrated 40 years of neurosurgery at GSH on 15 August 1988.
- 10 *Cape Argus* Thursday June 29, 2000.
- 11 CS Jones. A Personal History 1998: 7
- 12 Dr JM Bennie de Wet was appointed Medical Superintendent at the Somerset Hospital on 1 September 1927 to 1937. He was also Chairman of the committee for the establishment of a Blood

- Transfusion Service in Cape Town which was held at GSH on 24 September 1938. He continued as Superintendent at GSH until his retirement in 1954. A large lecture room near the main entrance of the Groote Schuur Hospital was named the Bennie de Wet Lecture Theatre in 1957 in his honour.
- 13 Professor Benjamin J Ryrie succeeded Professor GB Bartlett to the Chair of Pathology at UCT in 1925. A scholarly gentleman and teacher, he for many years, helped to build up medical school into a progressive institution. In 1941 he succeeded Professor Gunn, after his death, as part time Dean of the faculty. In 1948 he became the first full time Dean of the Faculty of Medicine and Professor of Medical Education, having given up the Chair of Pathology.
 - 14 Jones CS. Personal History 1998: 9
 - 15 Ibid. : 11
 - 16 Cluver EH. Medical & Health Legislation in the Union of South Africa. 1949: 41.
 - 17 Jones CS. Personal History 1998: 11
 - 18 Ibid. : 11
 - 19 Ibid. : 12
 - 20 UCT Calendar 1950.
 - 21 UCT Calendar 1954.
 - 22 The Cape Town City Health Department as part of its expansion completed the Hope Street Dental Clinic in 1941. It was situated a block or two behind the St Mary's Roman Catholic Cathedral in Cape Town. Many thousands of general anaesthetics were administered to children here for dental extractions. These were mask, gas, oxygen and halothane anaesthetics in the main, lasting a few minutes and the dental technique in the eighties was rapid extraction. All anaesthetic registrars were posted here early on in their rotation and learnt fast from these hair raising experiences. The nursing staff were excellent, and in later years the theatres were upgraded and fully equipped. The author does not recall any anaesthetic mishaps here whatsoever.
 - 23 UCT Calendar 1955.
 - 24 UCT Calendar 1955.
 - 25 Jones CS. A Personal History 1998: 14
 - 26 Jones CS. Private Beneficence for Public Profit – the Cecil John Adams Travelling Fellowship. *South African Medical Journal* 1995; **85**: 377-380.
 - 27 A maternity section in the Somerset Hospital was named Shipley as it was housed in the Shipley Pavilion. Work on this pavilion, originally for ophthalmic and aural diseases, commenced in 1914 and it was built in memory of Mr Joseph Shipley from whose estate a valuable bequest had been received. The maternity section was added in later years when an additional eight rooms were built.
 - 28 Jones CS. A Further Note on Costing. *South African Medical Journal*. 1961; **35**: 747-748.
 - 29 Bull AB. Reminiscences 1998: 4
 - 30 Beecher HK, Todd DP. A Study of Deaths Associated with Anesthesia and Surgery. *Annals of Surgery*. 1954; **140**: 2-34.
 - 31 Professor Cecil Gray, in 1948, surveyed the administration of tubocurarine to over 8000 patients and commented that 'anaesthesia had been revolutionised by removing for all time the need for deep anaesthesia'. Gray TC. Tubocurarine Chloride. *Proceedings of the Royal Society of Medicine*. 1948; **41**: 559-568. Gray and the Liverpool school of anaesthetists relied on an initial dose of thiopentone for induction followed by tubocurarine and inflation with gas and oxygen, intubation and hyperventilation with its resulting hypocapnia, and additional muscle relaxation used freely to provide proper operating conditions. It was the emphasis on the use of light anaesthesia that influenced the clinical development of skeletal muscle relaxation by anaesthetists in Britain.
 - 32 Scoline or suxamethonium is the most successful of the depolarizing agents by virtue of its unusually short period of action which is particularly suitable in anaesthesia. The drug was synthesized independently by Phillips in 1949 and Bovet and his colleagues in 1951. It was introduced into anaesthetic practice by Italian and Swedish workers at the International Congress held in London in 1951. Phillips AP. Synthetic Curare Substitutes from aliphatic dicarboxylic acid aminoethyl esters. *Journal of the American Chemistry Society* 1949; **71**: 3264. Bovet D, Bovet-Nitti F, Guarino S, Longo VG, Fusco R. Recherches sur les poisons curarisants de synthèse. *Archs*

- Int Pharmacodyn Ther* 1951; 88: 1-50. Ottolenhi R, Manni C, Mazzoni P. New Short-acting curarizing agent. *Anesthesia & Analgesia. Current Researches* 1952; 31: 243-250.
- 33 Refresher Course in Anaesthesia. *South African Medical Journal* 1954; 13 March: 226.
- 34 Ordino Victor Steyn Kok was born in Frankfort, Orange Free State and qualified MB ChB at the University of Cape Town in 1934. In 1939 he joined the 10th South African Field Ambulance and saw military service in Kenya, Abyssinia, Eritrea and the Western Desert. He was captured at an early stage and spent three and a half years in prisoner of war camps in Italy and Austria. At the end of the war he went to London, to the post of neurosurgical anaesthetist at the Enfield Hospital where he obtained the DA RCP(Lond) RCS(Eng). He, in 1951, accepted the post of full time Director of the Department of Anaesthetics at the Pretoria Medical School and in 1959 became the first Professor of Anaesthesia in the country at the University of Pretoria. – Parbhoo NP. *Five Decades* 1993: 93-95.
- 35 Professor JC Nicholson joined the Department of Anaesthesia at the Johannesburg General Hospital in 1947 and was the holder of the first Chair in Anaesthesia at the University of Witwatersrand in 1962. He was in this position until his retirement on 30 December 1970. Nicholson established the Department of Anaesthesia here, organized the original DA (Wits) and teaching for higher degrees. He was succeeded by Professor CH van Hasselt on 1 April 1971.
- 36 Jones CS. *A Personal History* 1998: 21
- 37 Ibid.
- 38 Phillips H. UCT 1914-1948. *The Formative Years*. 1993: 338.
- 39 Professor Marinus van den Ende graduated MB ChB at UCT in 1933 and in 1935 was appointed assistant lecturer in forensic medicine. During the second World War he was granted special leave and joined the RAMC. In 1950 he was appointed Professor of Bacteriology at UCT and at the end of 1953, succeeded Professor Ryrie as Dean of the Faculty of Medicine, while he continued to hold the posts of director of the CSIR Virus Research Unit and Professor of Bacteriology.
- 40 Professor James T Louw succeeded Professor EC Crichton as Professor of Obstetrics and Gynaecology at the UCT in 1951 and held this post until his untimely death on 27 January 1964. He was largely responsible for the new maternity wing at Groote Schuur Hospital which was opened in 1961 and called by the students 'St James' Palace'.
- 41 Professor Jan Francois Papenfus Erasmus was the first *full time* clinical professor – appointed to the Chair of Surgery from 1st January 1950. He came from the University of Witwatersrand having obtained his Ch M in 1940.
- 42 Professor Jannie H Louw graduated MB ChB (UCT) in 1938 and ChM in 1946. He was appointed Professor of Surgery at the University of Cape Town in 1955 and held this position till his retirement in 1980. He is recognised as the father of Paediatric Surgery in this country. He died on 7th May 1992. Obit. Terblanche JT. *Transactions of The College of Medicine of South Africa* 1992 July –December: 105.
- 43 Louw JH. Paediatric Surgery. *Transactions of the College of Physicians, Surgeons and Gynaecologists of South Africa*. 1960; 4: 2 October: 14-26.
- 44 Jones CS. *A Personal History*.
- 45 Professor James Grieg Thomson was appointed to the Chair of Pathology at UCT in 1948. He arrived from Durham University, Newcastle-upon-Tyne. He was largely responsible for the planning of the new pathology block and museum, completed in 1954.
- 46 James Tutin Irving held the Chair of Physiology at the University of Cape Town until the end of 1953, when he was appointed the first Director of the Witwatersrand Dental Research Unit.
- 47 Dr HJ Zwarenstein joined the physiology staff in 1925. An ardent researcher, he is widely known for the frog test in the early diagnosis of pregnancy first reported in 1933. He was promoted to associate Professor in 1954 and retired from the staff in 1966.
- 48 Dr Norman Sapeika was senior lecturer in the department of pharmacology in 1935 having graduated MB ChB at UCT in 1933 with scholarship and gold medal. He was promoted to associate Professor in Pharmacology in 1956 and appointed to the Chair of pharmacology in 1965.
- 49 Dr EN Keen, a UCT graduate of 1943, succeeded his father Dr JA Keen as Professor of Anatomy at the Natal University in Durban in 1958.
- 50 Jones CS, Meyerowitz LS, Sweeney GD. The effect of curarizing doses of gallamine triethiodide (Flaxedil) on the electroencephalogram in man. *Anesthesia & Analgesia Current Researches* 1956; 36: 425-428.

- 51 Jones CS. A Personal History 1998: 30
- 52 Professor C Walton Lillehei was at the department of cardiac surgery at the University of Minneapolis, USA and one of the pioneers in cardiac surgery. He was involved, with others in the development of the Lillehei Pump Oxygenator.
- 53 Barnard C, Pepper CB. Christiaan Barnard One Life. Howard Timmins Cape Town. 1969: 169-170.
- 54 Jones CS. A Personal History.
- 55 Harrison GG. MD (UCT) thesis: Death due to anaesthesia- its incidence and some associated factors. 1966; 2: 87 case no. 64/1/57.
- 56 Professor Velva Shrire graduated MB ChB (UCT) in 1941. He was appointed Head of the cardiac clinic at GSH in 1951, promoted to associate professor in 1966 and was the chief cardiologist during the first cardiac transplant performed by Chris Barnard.
- 57 Jones CS. A Personal History 1998: 29
- 58 Ibid.: 34
- 59 Professor Sir Robert Macintosh was the first Professor of Anaesthetics in the UK, in the Nuffield Chair of Anaesthetics at Oxford, UK in 1936. See : A Tribute to Professor Sir Robert Macintosh for his 90th Birthday.
- 60 The Nuffield Foundation. Andrews PWS, Brunner E. The Life of Lord Nuffield. A Study in Enterprise and Benevolence. 1955: 325
- 61 Beinart J. A History of the Nuffield Department Department of Anaesthetics Oxford 1937-1987. 1987: 114
- 62 Atkinson RS, Rushman GB, Alfred Lee J. A Synopsis of Anaesthesia 9th Edition 1982: 330
- 63 Ritchie Russell W, Schuster E. Respirator Pump for Poliomyelitis. *Lancet* 1953; 2: 707-709
- 64 Ritchie Russell W, Schuster E, Crampton Smith A. Respiration Pumps *Lancet* 1956; 270 (1): 539-541
- 65 Flaxedil – gallamine triethiodide, a synthetic curarizing agent producing a non-depolarizing neuromuscular block. Its was first prepared by the Frenchmen Bovet and Halpern in 1947. Mushin and others reported on its clinical use in the *Lancet* 1949; 1: 726.
- 66 Bull AB Reminiscences.
- 67 James Raventos was a research pharmacologist born in Barcelona, who qualified in 1929 and obtained a research fellowship under Professor AJ Clark in Edinburgh. In 1939 he joined the research laboratories of ICI at Alderley Park, near Manchester. He was involved in the introduction of fluothane in 1956. Raventos J The Action of Fluothane; A new volatile anaesthetic. *British Journal of Pharmacology* 1955; 2: 394-397. Dr John Nunn as Dean, presented Raventos with an Honorary Fellowship of the Faculty of Anaesthetists.
- 68 CW Suckling a Liverpool graduate, was another research chemist experimenting with Fluothane at the ICI laboratories at Widnes, Cheshire in September 1950. Suckling CW. Some chemical and physical factors in the development of Fluothane. *British Journal of Anaesthesia* 1957; 29: 466-472
- 69 Dr HG Epstein was a Research Assistant and University Physicist at the Nuffield Department of Anaesthetics, Oxford from June 1940-September 1976. He had done much of the preliminary analytical work on the Oxford Vaporizer.
- 70 Bull AB. The start of the halothane story *World Anaesthesia* 1997;1 No 1
- 71 ESO – Epstein/Suffolk/Oxford inhaler . Beinart J. A History of the Nuffield Department of Anaesthetics Oxford 1937-1987. 1987: 59
- 72 Dr E Schuster designed the Dale-Schuster pump for Sir Henry Dale toward the end of the First World War, to deliver intermittent positive pressure ventilation. Beinart J. A History of the Nuffield Department of Anaesthetics. 1987: 114
- 73 Michael Johnstone, a Belfast graduate was on the staff of the Manchester Royal Infirmary. He was brought in by ICI for the clinical trials of Fluothane because of his previous work on the cardiac effects of various anaesthetic agents. He showed Fluothane to be outstanding among volatile anaesthetics and reported his work on 250 administrations. His first anaesthetic to a patient using Fluothane was on 20 January 1956. Johnstone M. The human cardiovascular response to Fluothane *British Journal of Anaesthesia* 1956; 28: 392
- 74 John Tait Russell was born on 6 May 1918 in Edinburgh, Scotland. He graduated MB ChB at Witwatersrand University. During the war he served in Egypt at the 101 SA General Hospital and

- in Italy in the 19th Field Ambulance as well as the 6th SA Armoured Division. He obtained a DA RCP (Lond) RCS (Eng) in 1954, DA RCP&S (Ire) in the same year and the FFA RCS (Ire) in 1962. In 1957 he had joined Dr Pom Dyke in practice in Port Elizabeth and was appointed Head of the Anaesthetic Department at Livingstone Hospital, in a part time capacity. He was SASA President during the year 1963-1964 and President Eastern Province Branch of MASA in 1973 and again in 1986. John was involved in research with the use of Fluothane for ICI, during Caesarian Sections at the Livingstone Hospital. He died of respiratory failure at the age of 80 years on 8 August 1998 after a prolonged illness. He had been a Rotarian for many years.
- 75 Bull AB. The start of the Halothane story. *World Anaesthesia* 1997; 1 No 1: 11
- Die Wonder van Halotaan. Van die Redaksie: Editorial. *South African Medical Journal* 1962; 36 No 31: 617.
- 76 O'Brien HD. The continuation of the Halothane story. *World Anaesthesia* 1997; 1 No 2: 36-37
- 77 Ibid
- 78 Beinart J. A History of the Nuffield Department of Anaesthetics Oxford 1937-1987. 1987: 82

University of Cape Town

CHAPTER IV

THE ERA OF ARTHUR BULL THE YEARS OF TAURUS

Arthur Bull returned to Cape Town in 1956, and his first assignment was to start the anaesthetic service at the Red Cross War Memorial Children's Hospital ¹ where surgical cases were being admitted for the first time. As the volume of surgery, initially, was limited at the Red Cross, he held lists at the Groote Schuur Hospital, enabling him to be in touch with adult anaesthesia as well. The staff had also grown with the addition of three MMed (Anaes) graduates. Gaisford Harrison had gone to England for one year to obtain the DA RCP(Lond) RCS(Eng) and the newly introduced (1954) FFARCS in London. He was the first South African to pass both parts of the FFARCS(Eng).

"As the surgical load at the Red Cross grew, I was joined by Dr J Ozinsky, who had returned from the UK with a Diploma in Anaesthesia, DA RCPS(Ire), and we had additional staff by way of a registrar in training being seconded on a rotational basis from Groote Schuur Hospital. (Note: The DA RCPS(Ire) changed to FFARCS (Ire) in 1960) The special requirements of paediatric surgery ² and anaesthesia were soon brought home to us and presented a challenge. Among those seconded to Red Cross from time to time from GSH, were Jan Pretorius, ³ Tom Voss ⁴ and Petro Malherbe,⁵ all of whom made special contributions." ⁶

The loss of body temperature during anaesthesia following the effects of the use of newly introduced halothane as well as the new installation of airconditioning in the theatres was investigated by Harrison, Schmidt and Bull and led to recommendations regarding air conditioning and insulation of the patient ^{p 58, p 59}. Blood transfusion and volume control was another problem and was solved in various ingenious ways still in use today.

"In the late 1950's and early 60's, poliomyelitis ⁷ was almost of epidemic proportions in the Western Cape. A number of cases with severe respiratory paralysis were admitted to the City Hospital ⁸ - (this was our infectious disease hospital) and mortality amongst these cases was very high. The only means



28 Prof. A. B. Bull

available for treating respiratory paralysis at that time was the Drinker Respirator⁹ commonly known as the 'iron lung'. (The apparatus referred to here is the Drinker-Both Tank Ventilator which was distributed by Lord Nuffield.) It, of course, was unsuitable for patients with a tracheostomy as the wooden cabinet had a sponge rubber collar making an airtight fit around the neck.^{10, 11} There was one at the City Hospital and one at the Groote Schuur Hospital. If the patient had bulbar palsy in addition to his respiratory insufficiency, it almost invariably proved fatal as the inspiratory phase of the respirator sucked stomach contents into the lungs. While in Oxford I had been briefly associated with Dr John Spalding who organized a respiratory unit there to deal with such cases and had developed a simple form of IPPV apparatus – the Radcliffe Pump (made from easily available bicycle parts). I, immediately set about getting one sent over and with the co-operation of Dr Harold Ackerman¹² of the City Hospital, we were able to treat these cases by IPPR.”

“This was an entirely new thing here and as there were no experienced staff, proved one of the most demanding and stressful periods of my life. Our first patient spent about two months on IPPV per tracheostomy, and during this period I had to be constantly on call making an average 4–5 visits to the City Hospital day and night. The successful outcome of the first case was encouraging and others followed. At this time too, tetanus cases were admitted to GSH and here too, the mortality was high due to pulmonary complications including hypoxaemia as a result of the muscle spasm and the extreme sedation used in an attempt to overcome it. Again, based on experience in Oxford, I suggested IPPR and reluctantly was allowed to treat a case in D6 ward at Groote Schuur with curarization and IPPR. The result did much to overcome the scepticism of some senior physicians. One however, was enthusiastic. This was Dr Helen Brown¹³ to whose ward future cases were admitted, and in fact, formed what was to be the future Respiratory Unit at GSH under the direction of Dr Alex Ferguson¹⁴. The Department of Anaesthesia retained a position in this unit and a permanent rotating post (later of 3 months duration) was established.”¹⁵

“Meanwhile tetanus problems were present in the Paediatric Department and I was approached by Dr Pat Smythe¹⁶ regarding the possibility of IPPR for neonatal tetanus. This presented a major problem as the only apparatus available was the Radcliffe Pump – not suitable for these small patients. Also, suitable

tracheostomy tubes did not exist. It was necessary to improvise and over a time, we developed a technique for successful IPPV treatment of neonatal tetanus. ^{p 69} This development we discovered later, was paralleled by the efforts of Dr Keith Sykes ¹⁷ who was on a similar mission in Durban about a year later, having come down as a visiting anaesthetist from Oxford.” ¹⁸ An interesting facet of this treatment is the history of our own laboratory research assistant Mr Brian Sasman. At the age of about 10 years, he had trodden on a nail in a heap of compost while gardening and soon developed tetanus, a not uncommon infection at the time. Admission to the Groote Schuur Hospital brought him to a ward at the back end of the hospital, where he was kept in isolation, ventilated for a period of about 2 ½ months and treated. He being, one of the early Smythe/Bull patients.

As fortune would have it, he improved and was then transferred to the D ward at GSH. Brian was unable to recall any memory of this period when he was being ventilated, but remembers having a mild paresis on his left side, which eventually improved after physiotherapy. He returned to school although he was set back by one year. The need to supplement the family income caused him to leave school at the age of 14 years and seek employment. With a basic education of Standard Six, Brian worked in Cape Town for two years. Thereafter he found a half day job at the UCT Medical School Campus as a cleaner of the anaesthetic laboratory and the orthopaedic workshop.

A period of almost 5 years had passed at Medical Campus, when Professor Bull curiously enquired about the scar in his neck. Brian related his story and to Professor Bull's utter amazement, it dawned that Brian was indeed one of his and paediatrician Professor Smythe's earliest successes, in the treatment of tetanus by this very innovative, experimental and almost completely new method of intermittent positive pressure ventilation and paralysis using curare. From here onwards Brian took up a full time position in the anaesthetic laboratory. More will be said about Mr Sasman later.

“These early successes in respiratory therapy led in due course, to an awareness of the need for a wider use of intensive care in which for example Drs Alex Ferguson, Solly Benatar ¹⁹ and Peter Potgieter

²⁰ played a leading role. At the Red Cross too, as a result of our efforts, the success with neonatal tetanus led to the establishment of a respiratory unit.” This was run by Dr Max Klein ²¹

“Earlier, I mentioned the use of the ‘iron lung’ respirator and it is perhaps worth recording that the original one at GSH was one of the vast number donated to hospitals throughout the British Empire by Lord Nuffield. They were produced at the Morris Motor Works in Oxford and made to a simple and robust design, using plyboard for the body and a split motor tyre inner tube mounted as the bellows making for easy repair in far flung places. This original one at GSH was replaced in about the early fifties by a huge German Dräger machine which was housed in an alcove in the passage, from the main block of the hospital to the J Block. Its was also used to transport patients from the ENT wards to the J4 Neurosurgical theatre – the longest possible route in the hospital involving two lifts and the long corridors. The usual chain of events was that a patient with acute mastoiditis would ‘cone’ due to spread of the infection and become apnoeic. The iron lung was then called for while artificial respiration was performed and the emergency anaesthetist called. A cumbersome procession then moved to J4 theatre where cerebral decompression was performed. To the anaesthetist this seemed a ridiculous way of doing things and soon arrangements were made to have an anaesthetic machine available which the anaesthetist could use to ventilate the patient on the journey to J4. With the advent of IPPV apparatus and the introduction of the AMBU bag (manual inflatable balloon with a mask attachment and to which a supply of oxygen could be added) and its further modifications, the iron lung became obsolete. A few of the older anaesthetists today will recall these hectic journeys from D6 to J4 with amusement in the light of today’s more advanced equipment.”²²

While Professor Bull and Smythe’s technique of prolonged ventilation of children suffering from poliomyelitis and tetanus, often with curarization, was probably a world first, the idea was not entirely new. On the 18th April 1918, in a report on the Proceedings of the Clinical Meeting of the Witwatersrand Branch of the British Medical Association held on that day, it is stated that Dr W Steuart demonstrated an *Apparatus for Inducing Artificial Respiration* for long periods. The apparatus was made with a view to treat children suffering from respiratory failure during the recent epidemic of anterior poliomyelitis. The principle used was to place the child’s thorax and abdomen in a rigid air-tight chamber communicating

with a large bellows, which periodically was to cause a partial vacuum in the box. *The Medical Journal of South Africa*. 1918: 147-150.

A variable belt gear built into the power transmission allowed for the number of artificial respirations to be halved or doubled. There was no experience of how many breaths were required nor was the pressure to be used, known. There were problems, however, in how to achieve a seal around the body. Dr Sauer who was present suggested the use of intratracheal intermittent ventilation. In the end the meeting suggested to Dr Steuart that while the apparatus was commendable he should try this with animal experimentation first to iron out all the minor problems, one of which was how to keep the child anaesthetised for such long periods.

There was at that time, in America, a 'Lung Motor' using an ordinary anaesthetic mask and intermittent ventilation. This technique was condemned because of the high pressures needed as well as the complications such as haemorrhage, which ensued.

MORE OF THE NUFFIELD FOUNDATION

In 1959 Dr W Lambrechts²³ applied for and was successful in being appointed a Nuffield Clinical Assistant at Oxford. This was of great benefit to the Department as it provided another trained staff member with overseas experience. He in turn, was followed by other members of the Department recorded below. A brief resume of their research is included.

01. Arthur B Bull is awarded the first Nuffield Dominion Clinical Assistantship from September 1954 – April 1956.
His early research on halothane has been noted earlier. In the Department of Physiology, in conjunction with Dr Paul Glee an investigation was made into some of the effects of lignocaine and succinylcholine on the EEG of cats. Experience was obtained in the use of endotracheal tubes at the Thoracic Surgical Unit and the Neurosurgical theatre of Dr J Pennybacker.
02. In 1959 Willem (Bill) van der Merwe Lambrechts²³ was awarded a Nuffield Dominion Clinical Assistantship at Oxford as above.
His research in the department at Oxford and the Radcliffe Infirmary culminated in the following publications :
 - a) The incidence of post-operative pain. *British Journal of Anaesthesia*. 1961; 7: 345-35 p⁷³
 - b) Post operative amnesia. *British Journal of Anaesthesia*. 1961; 8: 397-404 p⁷⁴
 - c) Extradural analgesia and the prevention of post operative respiratory complications. *British Journal of Anaesthesia* 1961; 12: 628-641 p⁷⁵
03. In 1961 Gaisford G Harrison was awarded the Nuffield Foundation Travelling Fellowship in Medicine for South Africa.²⁴ In this period he undertook a three months course "The application of Statistical Methods to Medicine and Epidemiology"²⁵ conducted by the Department of Medical Statistics at the London School of Tropical Medicine and Hygiene of London University.

Subsequently he joined the staff at Hammersmith Hospital ²⁶ as honorary Consultant and observed some of the research work done by Dr Jimmy P Payne, at that time his Director. By observation Gaisford learned of the experimental technique used in :

- a) The standard cat preparation for pharmacological investigation.
- b) The preparation and setting up of frog rectus and kitten diaphragm preparations and their uses.
- c) Dye dilution methods for estimating cardiac output.

Further work involved 'Research into Aspects of Pulmonary Physiology applied to Anaesthesia' and the 'Management of the Respiratory and Intensive Care Unit'. Projects along these lines were being directed by Dr MK Sykes, full time lecturer in Anaesthesia, British Postgraduate Medical School. With the collaboration of two other members of the anaesthetic department of Hammersmith Hospital, Drs P McCormick and J Sandison, investigations were directed mainly at elucidating :

1. Respiratory changes that occur in the postoperative period with special reference to cardiac surgery with Total Body Perfusion.
2. The treatment of postoperative respiratory insufficiency with Intermittent Positive Pressure Respiration, and the establishment of indications for its use.

Observations on 'Applied Pulmonary Physiology in the Postoperative Period' were described, which were carried out on patients immediately preoperatively, immediately postoperatively, daily for the first three to four days postoperatively, on the sixth postoperative day and again just prior to the patient's discharge. The observations undertaken were:

- a) Clinical and radiological observations.
- b) The frequency of respirations.
- c) The volume of gas expired per minute.
- d) Physiological dead space.

In addition to the above, Harrison took the opportunity of visiting the following hospitals and departments of anaesthesia.

- i) Nuffield Department of Anaesthetics, Oxford.
Special interest- Respiratory Unit.
- ii) Western Fever Hospital, London.
Special interest- Respiratory Unit.
- iii) Welsh National School of Medicine, Cardiff
Special interest- a. System of collecting statistical information relating to anaesthesia with subsequent analysis on the Hollerith machine.
b. Post anaesthesia recovery ward.
c. Anaesthesia research laboratory.
- iv. Department of Anaesthesia, University of Liverpool Medical School.
Special interest- a. Pain Clinic
b. Anaesthetic Research Laboratories.
c. Postgraduate teaching programme.
d. Paediatric anaesthesia.
- v. Research Department of Anaesthetics of the Royal College of Surgeons, London.
Special interest- Research laboratory.
- vi. Royal infirmary, Rochdale.
Special interest- Pain Clinic.
- vii. Department of Anaesthesia, St George's Hospital, London.
Special interest- Anaesthesia for cardiac surgery utilising the Drew technique. ²⁷

04 In 1962 Michael John Rorke ²⁸ was awarded a Nuffield Dominion Clinical Assistantship at Oxford under Professor Macintosh. Working with Dr A Crampton Smith ²⁹ (later to be 2nd Nuffield Professor of Anaesthetics) and Dr HG Epstein the physicist, he was involved in research on respiratory care and the determination of blood gas status, ^{p 115, p 148} using very new techniques (the early Astrup) with patients on long term ventilation. On one of his trips to the Department, Arthur Bull intimated to Mike that as the Department at the UCT was in a process

of restructuring and expanding, it would be advisable if Mike returned. The tenure at Oxford was therefore cut short.

- 05 In 1969 Julien F Biebuyck³⁰ was awarded a Nuffield Dominions Clinical Assistantship at Oxford University. In the period 1969–1972, under the supervision of Sir Hans A Krebs,³¹ Julien researched 'The Metabolic Effects of halothane, with particular reference to the Liver and Brain' as senior registrar, Nuffield Department of Anaesthetics, Radcliffe Infirmary, Oxford. Julien had originally commenced work on this in Cape Town. This research formed part of his thesis for the award of D.Phil, Trinity College, Oxford in 1971.

(Note: The Nuffield Foundation Travelling Fellowship was different from the Nuffield Clinical Assistantship in that the Assistantship was officially for 2 years extendable to 3 years whereas the former Fellowship was for a period of 1 year. With South Africa ousted from the Commonwealth in 1961, following the declaration of the Republic of South Africa on 31 May 1961, this Fellowship award ceased but the Clinical Assistantship continued.)

By 1960 specialist anaesthetists were graduating from the Department in a steady stream and their continued stay thereafter proved of great benefit to the Department. An added bonus was the return of staff members with their overseas experience. There was no shortage of applicants and these were annually of increasing calibre.

THE KOK AND BULL SAGA

In 1960 the World Health Organization made a Travelling Fellowship available for a South African anaesthetist and applications were invited from interested persons. Arthur Bull applied and his application was supported by Dr CS Jones. What was not then known was that the Fellowship was earmarked for Professor Kok, who was currently the incumbent of the First Chair in Anaesthesia in South Africa, at the University of Pretoria in 1959. The selection committee were caught unawares but they urged the WHO to offer Fellowships to both of these outstanding candidates.

The extensive tour taken up in September 1964, took them both to Norway, the III World Congress of Anaesthesiologists in Brazil and the USA, studying teaching methods and advances in clinical anaesthesia, and provided a fitting prelude to Arthur's next appointment, that of Head of the Department of Anaesthesia at the University of Cape Town, in succession to Dr CS Jones in 1961. This joint tour of the two titans came to be known as the 'Kok and Bull saga'.



29 Professors OVS Kok and AB Bull

Many contacts in the USA and Britain were made and these would prove to be of great future benefit to the Department. This, over the years, led to a succession of foreign anaesthetists joining the staff for varying periods. One of the main attractions for these foreign anaesthetists was the opportunity of doing a rotation of paediatric anaesthesia at the Red Cross Hospital, paediatric anaesthesia experience being at a premium in most training programmes overseas.

The benefit mentioned above was, of course, mainly lost with South Africa's exit from the Commonwealth in 1961, later to become more severe because of sanctions imposed by the international community opposed to the prevailing government's 'apartheid' policy³². Aside of this, the salaries paid in South Africa were not suitable for overseas trainees, as they did not even cover their basic mortgage payments in England and elsewhere.

SALARIES IN 1962

Chief Anaesthetist	R5800/year	or	£ 2900
Assistant Anaesthetist	R5800/year		£ 2900
Senior Anaesthetist	R5600/year		£ 2800
Anaesthetist	R5200/year		£ 2600
Medical Officer	R5200/year		£ 2600

These salaries were advertised for the Addington and King Edward Hospitals in Durban in that year.

DR CECIL STANLEY JONES³³

In 1961 Dr Jones tendered his resignation as Head of the Department of Anaesthesia, University of Cape Town, where he had devoted 9 years to laying the foundations of what was subsequently to be recognised as an Anaesthetic Department of international repute. His application for the post of Head of Anaesthesia in the newly created University of New South Wales in Sydney, Australia had been accepted. He looked forward to facing the challenge of developing a Teaching Department of Anaesthetics in an entirely new Medical School in the Australian sub-continent. This was the 2nd medical faculty in Sydney.

Of Welsh non-conformist pioneering stock, Cecil was born in England on 27 June 1919 and raised in Natal. Following medical studies at the University of Cape Town, he practised at Addington Hospital in Durban from 1942-47, where he decided on a career in anaesthetics. He subsequently studied at the Mayo

Clinic, USA, obtaining an MS degree in Anesthesiology from the University of Minnesota in 1950. In 1961 he was informed that he was elected to Fellowship of the Faculty of Anaesthetists of the Royal College of Surgeons of England but was able to personally collect the certificate only about 10 years later. The Faculty of the Royal Australasian College had similarly honoured him just prior to this.

In 1960 he was elected President of the South African Society of Anaesthetists ³⁴ but resigned during his term of office in order to take up his new appointment as Associate Professor and Head of the Department at the Prince Henry Hospital, Little Bay, University of New South Wales from 1961-67. Prior to this, during 1956-58, he was Area Representative for the Cape Western Branch of the South African Society of Anaesthetists. He was also an Associate Founder Member of the College of Physicians and Surgeons of South Africa. ³⁵ At the end of 1967 he returned to South Africa and practiced in a small town Worcester ³⁶ in the Western Cape Province as a private anaesthetist till his retirement in the mid nineties. He returned to Cape Town and devoted himself to the care of his ailing wife Rene. Buck, mentally astute right to the end, died peacefully on 8 September 1999 at the age of 80 years.

By 1960, the Department of Anaesthesia had gained clinical standards equal to those of overseas universities, but it was apparent that teaching and training, when not continually stimulated by research in the University itself, would become unimaginative and outmoded. It was essential for research to be undertaken to stimulate further development and approach problems peculiar to South Africa. Initially, research activities were based on the British and particularly the Oxford School. The Nuffield awards to several members of the Department from 1954 to 1972 were invaluable in keeping the Department up to date with developments in our specialty and with developing research methods, applicable in Cape Town to our discipline.

Until now, Arthur Bull's involvement had been mainly to build up the service at the Red Cross Hospital and the various innovations in the respiratory field already referred to. In addition there were increasing demands on the Department for clinical service. Expansion at GSH included the new Maternity Block (the MF theatres) ³⁷ and the Princess Alice Orthopaedic Hospital ³⁸ in Retreat, which was also under

the wing of the Department. On taking over the Department, he was reinforced by Gaisford Harrison and Jan Pretorius in 1955. Gaisford had returned from the UK with a FFARCS, DARCS(Lond) RCP(Eng) and in addition to a heavy clinical commitment, started planning research. Jan Pretorius, a teacher by profession before doing medicine, was a great asset in teaching and organization. Jan was the one who had organized the first major successful SASA anaesthetic congress involving the Department and this did much to advertise the Department throughout the country in 1976.

THE CAPE TOWN CARDIFF EXCHANGE

For a while now, negotiations between Dr CS Jones and Professor William Mushin³⁸ continued, to effect an exchange at lecturer level between the two departments. These were naturally protracted, as they had to be cleared at both University and Hospital levels in the UK and Cape Town. These proved successful and in 1961 Dr Sam Galloon came from the Royal Infirmary, Cardiff to spend a year in Cape Town. Drs Jan Pretorius and Tom Voss³⁹ each took a 6 months turn to take Dr Galloon's place in Cardiff.

Professor William Woolf Mushin who had been First Assistant in the Nuffield Department of Anaesthetics was appointed first Professor of the Department of Anaesthetics, Welsh National School of Medicine which was founded in 1947. Sam Galloon was a Consultant in the Department since 1957. Both these arrangements were of immense value in boosting confidence in the Department that we were not entirely out on a limb and far from international cross fertilization.

As Head of the Department Arthur Bull had a vision "Clearly in my mind we needed a vast expansion in the Department and my priority was to provide a first class clinical service by having all operating lists attended to by trained specialist anaesthetists and that the trainee should at all times be supervised by them, preferably on a one to one basis. With the number of clinical commitments this was going to be a mammoth task and I decided to set about it in the belief that persuasion and co-operation is better than confrontation when it comes to fighting for recognition and posts, in the various committees." ⁴⁰

This approach was commendable. In the teaching sphere, Arthur has always been noted for teaching by example and what could be called a conservative, progressive approach. In the wider sphere of departmental management, development and relationships with other departments, his approach has been characterised by diplomacy and reasonableness. His mainstay was the provision of safe anaesthesia at a reasonable cost. His noted aphorism '*Eternal vigilance is the price of safety*'.

DEPARTMENTAL OFFICE SPACE

With the expansion of the Department mentioned above, it was essential that additional space be sought for what could be termed a departmental Office. In 1952, the Department of Anaesthesia had the use of a small room next to the changeroom of the main surgical theatre suite. This contained an equally small desk and a couple of chairs. There was also a bookcase holding Dr Fuller's personal medical library, a few old issues of medical journals and empty shelving. Later a larger desk and an old typewriter was issued. Dr Jones was able to have a further small room, fitted out as a simple laboratory across the corridor allocated to the Department. Accommodation at the hospital was certainly at a premium, but after several requests and pleadings, an area behind the Main Theatre changerooms was allocated. This area had formerly been used to house administration clerical staff. These were then rehoused in the new Administration Building below the Nurses' Home. By 1963 additional rooms were allocated on the B floor. The Department now consisted of space for staff lockers in the corridor, a room housing the anaesthetic equipment maintenance workshop, a room which housed an office for Dr Ozinsky, an office for Professor Bull, a staff room and a small office for our departmental secretary. Across the corridor there was a separate reading room for consultants, a small room which served as a library, a further miniscule room in which was centred the audiovisual room and which later housed the first computers, a tiny room for storage which we called the boiler room because of the hot steam pipes passing through it and opposite it a very tiny laboratory. Initially there was no secretarial help and the preparation of the daily and weekend roster became a nightmare simply because of a lack of co-ordination in bookings on the part of the various surgical disciplines – each one of which felt theirs was the only service to be supplied.

DEPARTMENTAL STAFF

On 1 November 1961 Ms Pat Strong was appointed as a part-time secretary to the Department by the University. Shortly afterwards, a Hospital Secretary Mrs Marais joined the staff. This basic unit formed the nerve centre of the Department.

The Anaesthetic staff in 1962 consisted of

Full time:

Head

Dr AB Bull

Senior Lecturers

Drs GG Harrison, JA Pretorius, J Ozinsky,
TJV Voss, MH Heyns

Part time:

Senior Lecturers

Drs J Abelsohn, PS Jenkin

Full time:

Lecturers (specialists)

Drs L Atkins, W vd M Lambrechts, PH Malherbe,
GJ Rosseau, HJ du Toit, PA Vis

Part time:

Lecturers

Drs AH Cohen, DM Jowell, J Levin, C Moss,
NW Schmaman, JC Woeke, M Friedland, B Solomon.

Registrars in training

Drs ACGB Anderson, TM Botha, JA Collie, JME du Plessis,
HJT Morkel, MJ Rorke, NM Shear, RP Smithson,
CL Wicht, CJ Dekenah.

Total 32

February 1962 saw the return to South Africa of both Drs Harrison (for the second time) and Jan Pretorius. In April 1962 Bill Lambrechts resigned to commence a career in private practice. Dr Mike Rorke who was awarded a Nuffield Dominion Clinical Assistantship left for Oxford and Dr Tom Voss⁴¹ left for Cardiff in Professor Mushin's Department in exchange with Dr Sam Galloon. This movement of staff did little for stability in the Department, particularly with the seniors.

In April 1962 Professor Mushin of Cardiff, who was Dean of the Faculty of Anaesthetists, Royal College of Surgeons (Eng) visited the Department. This was one of the first of a series of visits by distinguished overseas anaesthetists. The reason for his visit to South Africa was to monitor the first examinations for the FFA(SA). For a list of distinguished visitors to the Department of Anaesthesia over the years see appendix.

THE FIRST BEQUEST FOR RESEARCH

In May 1962, the University received its first private bequest specifically for the Department of Anaesthesia. Dr Samuel Michael Geffen⁴², who died earlier in the year, left an amount of R1000-00 for postgraduate 'study and research' in anaesthesia.

DR SAMUEL MICHAEL GEFFEN BEQUEST

Dr Geffen, a South African anaesthetist, died in 1962 at Groote Schuur Hospital, Cape Town, after a myocardial infarct, leaving a bequest to the University of Cape Town. In terms of the bequest a R1000.00 was made available for assisting in postgraduate education or research in anaesthesia.⁴³

Mr Daan Fourie, Public Relations Officer at the University of Cape Town noted that this was the very first private bequest made to the University specifically for use in the Department of Anaesthesia. From time to time, the Registrar of the University invited applications for assistance from postgraduate students or staff in the Department of Anaesthesia. The money allocated was derived from the interest on capital only.

The Bequest became operable in 1976 when the capital amount had grown to R2200.00. The first grant of R400.00 was made in April 1977 for the purchase of a Facit calculator for use in the Research Laboratory of the Department of Anaesthesia. By 1990 the capital amount had grown to R9200.00. Because of the administrative costs and difficulties in running such individual accounts, it was considered prudent to purchase much needed computer equipment and an inkjet printer for use in the registrar's room of Department of Anaesthesia in the new Groote Schuur Hospital. Since the account was now overdrawn, it was closed in December 1991.

In the obituary⁴⁴, Dr Jack Abelsohn noted: Dr Samuel Michael Geffen was born in Paarl in 1896. He commenced his medical studies at the University of Cape Town, then proceeded to Dublin, graduating in 1921. He practised in Paarl for two years, then settled in Johannesburg, where he built up a large practice. In 1938, at the age of 42, he decided to specialize in anaesthetics and went to London where after



Dr Sam Geffen



a year of postgraduate study, he obtained the Diploma of Anaesthetics of the Royal Colleges of Physicians and Surgeons. At that time the Diploma had only just been introduced in 1935 and Dr Geffen was about the 5th South African to obtain it in 1939.

During 1939-1951, by dint of hard conscious work he built up a large anaesthetic practice in Johannesburg, consulting from 81 Pasteur Chambers, Jeppe Street. He introduced many new ideas and new techniques - the use of Pentothal not only for induction but also for the maintenance of anaesthesia ; blind nasal intubation; the Etherington Wilson Technique for high spinals⁴⁵ ; and the administration of avertin and cyclopropane. From 1940-1950 he was associated with Dr Lee McGregor⁴⁶, who had become the recognised South African authority on thoracic sympathectomy for the relief of hypertension.⁴⁷

The stress and strain of his work unfortunately exacted its heavy toll and in 1951, following a severe attack of coronary thrombosis, he was left with a failing heart and was never able to resume practice.

THE DAVID PRISMAN PRIZE November 1963

Mr David Prisman , an attorney in Cape Town, died in Groote Schuur Hospital on 26 October 1963 after a prolonged illness. His son Mr CB Prisman, also an attorney in Cape Town, offered a monetary prize to the Department of Anaesthesia, in memory of his father. He wrote “ During the course of his illness, the members of the Department of Anaesthesia did all they could to ease his pain. We, his family, are exceedingly grateful and desire to show our gratitude and appreciation in some tangible and permanent form”.

The prize, initially awarded every three years and later annually, in amounts of R75, increased to R100 and then R150 in 1986, was for the *Prisman Essays*.

“For the medical student submitting the best essay on a subject related to anaesthesia, set by the Head of the Department at the beginning of the academic year and to be submitted at the end of the term”.

Some of the essays are listed here.

- 1975 The place of anaesthetics in modern anaesthetic practice. (1) MPG Dean
- 1976 Anaesthesia and obstetrics (none submitted)
- 1977 The relief of pain during childbirth. (2) JD O'Brien

- 1978 The role of anaesthesia in modern surgery (0)
 1979 The role of anaesthesia in modern surgery (1) S Tordoff
 1980 The role of the anaesthetist in the development of intensive care medicine (1) S Dowdle
 1981 The role of the anaesthetist in the treatment of chronic pain. (4) A Katz
 1982 Anaesthetics in Primary Health Care/General Practice - are current training schedules adequate ?
 (0) “ “ “ (1) D Stevens
 1983 “ “ “ (1) D Stevens
 1984 Anaesthetics at a cellular level. (3) DJ Maartens
 1985 Anaesthesia for ambulatory surgery. (1) P Standing
 1986 The control of postoperative pain - a neglected facet of anaesthetic practice.(0)
 1987 “ “ “ “ “
 1988 The role of the anaesthetist in the modern trauma unit.

() indicates the number of entries submitted with the name of the prize winner alongside.

It is of interest to note the blossoming of careers of some of the recipients –

Michael Peter Geoffrey Dean is a cardiologist.

John Andrew O'Brien is a physician.

Simon Tordoff is a medical practitioner in Leicester, UK and is a talented caricaturist. ⁴⁸ Some of his artistic work was published in *Inyanga* 1979 on the occasion of the University of Cape Town 150 Anniversary, and appeared as 'Milestones in Modern Anaesthesia & Surgery'. These showed great insight for a 5th year medical student.

Sue Dowdle joined the Department of Anaesthesia in 1985 but left in 1986 after having obtained the DA(SA). She is now a specialist in nuclear medicine. *Inyanga* 1980; 47th Ed.: 27-30.

Douglas Graham Stevens is a medical practitioner.

Deborah Johanna Maartens is a pathologist.

THE DAVID PRISMAN TRAVELLING BURSARY

On the advice of the Dean of the Faculty of Medicine, Professor Bromilow-Downing to Mr CB Prisman in a letter dated 28 November 1963, a further cash prize was converted to a travelling bursary. "I am firmly of the opinion that a postgraduate travel award would make the greater contribution in this field. Whereas the training afforded our graduates in this country is second to none in the world, a considerable amount of experience and polish can be obtained by postgraduate study and for research in one of the older and larger countries such as the United Kingdom or the United States of America. A young man, having undergone two or three years of postgraduate training in this country and secured a higher qualification usually finds himself in a position of being able to secure a paid post overseas but lacks the means of

getting there. An amount of say R300-400 would go a long way towards his airfare, tourist rate, there and back.”

Originally established in 1968, with a travel award of R150.00 per annum, the bursary, tenable for two years, was increased to R300.00 per annum. It was available to postgraduate students in anaesthesia. ‘The award would be made on the recommendation of the Head of the Department of Anaesthesia of the University of Cape Town. Graduates of UCT, regardless of race or creed will be eligible for consideration and the financial need will be taken into account’.

Dr Julien Biebuyck was the first recipient of this bursary in 1969. Dr Biebuyck is currently Senior Associate Dean for Academic Affairs and the Eric A Walker Professor of Anesthesia at the Pennsylvania State University College of Medicine, The Milton S Hershey Medical Center in Hershey. He is an internationally recognised researcher in anaesthesia.

Some of the other recipients were Miss V Manca (a researcher for her PhD) and Dr DM Linton in 1982. In 1991 the capital had grown to R19,600 earning an interest of R4300. By October 1996 this capital had increased to R45,052⁴⁹. However, by the year 2000, the interest was barely sufficient to cover the cost of a return ticket to the United Kingdom. It was therefore the intent to award travel bursaries to registrars who were presenting papers at regional congresses in South Africa.

ASSOCIATE PROFESSORSHIP

Such was the recognition of the development in the Department, that in 1963, Arthur Bull was promoted *ad hoc* associate Professor of Anaesthesia of the University of Cape Town. This added greatly to the status of the Department. This year also saw an increase in stability in the staff structure. One of the innovative changes was to delegate senior staff with special interests to areas where they could pursue these to the best advantage. Dr Jan Pretorius chose neurosurgery; Dr Ozinsky cardiac surgery and general and vascular surgery were dealt with predominantly by Arthur Bull and Gaisford Harrison.

(Note: It was not until 1954 that the University introduced further associate professorships and then specifically for the *ad hoc* promotion of a limited number of senior lecturers. ‘Promotion is determined on merit alone. Emphasis is normally on scholarship and ability to do outstanding research or creative work as

evidenced by publications or through teaching, but due cognizance is taken of other contributions to the prestige of the University.’)

RESEARCH IN THE DEPARTMENT

Surgical research at this period, in the early sixties was very active with the work of Robert Goetz⁵⁰ and Ben Dreyer⁵¹ who regularly called on the Department of Anaesthesia for assistance with their animal experiments. A word about Bob Goetz – In 1937, the University of Cape Town awarded the recently endowed JS Marais⁵² Memorial Research Scholarship to a promising refugee from Nazi Germany, Robert H Goetz,⁵³ allowing him to continue the investigations into vascular diseases⁵⁴ which he had begun as a student. However, in order to register with the SAM&DC, he had to repeat the last 3 years of the MB ChB. He graduated in 1942. The University then created a post of Research associate Professor of Surgery (1946)⁵⁵ and at GSH a Peripheral Vascular Diseases Unit for Bob Goetz.⁵⁶ The experimental work spilled over into the clinical surgical field and by 1953, GSH surgeons were regularly performing cardiectomy and mitral valve dilatations. It is interesting to hear Dr CS Jones admit that the anaesthetic was rather crude compared to later standards, but that he was the first to use routine regular blood pressure monitoring for his cases.⁵⁷

Goetz’s work led to the first operation for removal and graft of an abdominal aortic aneurysm, the graft having been hand made by Bob Goetz from Ivalon sponge. He delighted in saying in his German accented voice “It is from the sponge you use for to clean your ear”. Prof Bull had this to say “It is perhaps worth noting that Ben Dreyer and Bob Goetz at that time performed a cardiac transplant on a dog for which I gave the anaesthetic possibly between 1953 and 1955. The dog did not survive.”⁵⁸ (The author was unable to establish the exact date)

Until 1964, most publications emanating from the Department of Anaesthesia, dealt with purely clinical reports with the exception of cf p28, p30, p32, p33, p34, p37, p39, p49, p51, p52, p55, p56, p60, p65, p 69, p 79. Fundamental research had just started with Gaisford Harrison’s project on Deaths associated with Anaesthesia, which was to earn him his MD (UCT) degree in 1966. But more about this later.

THE FIRST CHAIR OF ANAESTHESIA

In 1965 the Department was given a major boost by the University of Cape Town creating a full Chair of Anaesthesia. Professor Arthur Bull as *ad hoc* Professor of Anaesthesia was appointed first incumbent of this prestigious Chair in Cape Town. This event was sadly preceeded by the creation of Chairs at Pretoria, Natal and Johannesburg.

Background: At the 34th South African Medical Congress held in Durban, in October 1946, Mr Aubrey Radford, a surgeon, proposed that “ This Congress recommends the immediate instigation of a Chair of Anaesthesia for South Africa.” This was carried unanimously ⁵⁹ At the SASA AGM of the same year, Dr Benjamin Weinbren proposed that the Society heartily endorse the resolution passed by the 34th SA Medical Congress. This was also unanimously supported. Very little progress was made in the next few years but the South African Society of Anaesthetists maintained correspondence with all the universities. In the meanwhile, the SAM&DC had accepted and supported the idea .

With further efforts by Jack Abelsohn, OVS Kok, Bobby Roberts and others, as well as a proposal at the SASA AGM in 1955 by Abelsohn and Molly Barlow that ‘The Principals of the Universities be approached with the suggestion that the Departments of Anaesthesia be created independent departments academically’, progress was finally made with the appointment of Dr OVS Kok as Professor of Anaesthesia at the University of Pretoria – the first such Chair in the Union of South Africa, in 1960. Thereafter was Professor JC Nicholson at the University of Witwatersrand in 1962 and Professor Harry Grant-Whyte , University of Natal in 1964 (although the Chair was occupied in a part time capacity since 1961)

On 28 September 1956, Dr CS Jones in a letter to Professor RW James, Principal and Vice Chancellor, UCT wrote:

“.....At the Annual General Meeting of the Society of Anaesthetists held in Johannesburg on the 26 August 1956, the Society again decided to approach each of the Universities with a request to create Chairs of Anaesthesia, although I told them that I doubted very much whether any of the Universities could afford the financial implications of such a step.”

In reply to Dr CS Jones, ⁶⁰ Dr RW James, the Acting Principal of the UCT, wrote:

CHAIRS IN ANAESTHESIA

1937	Nuffield, Oxford	Prof Robert Macintosh
1941	Henry Isiah Dorre Harvard	Prof Henry Beecher
1960	University of Pretoria	Prof OVS Kok
1961	University of Natal	Prof Harry Grant-Whyte
1962	Univ of Witwatersrand	Prof JC Nicholson
1965	University of Cape Town	Prof AB Bull

CHAIRS IN ANAESTHESIA

University of Pretoria

1960	Prof OVS Kok
1975	Prof AJ Lessing
1989	Prof JM Hugo

University of Natal

1961	Prof Harry Grant-Whyte
1970	Prof AJ Coleman
1975	Prof JW Downing
1987	Prof DA Rocke

University of Witwatersrand

1962	Prof JC Nicholson
1971	Prof CH van Hasselt
1986	Prof CG Schoonbee
1988	Prof DF Morrell
2001	Prof S Bhagwanjee

2ND Chair at Baragwanath (Chris Hani)

1975	Prof DG Moyes
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3rd Chair at Hillbrow

1984	Prof MFM James
1989	Prof E Shipton

University of Cape Town

1965	Prof AB Bull
1980	Prof GG Harrison
1987	Prof MFM James

2nd Chair at University of Cape Town

1993 Prof John Viljoen

2001 Prof A Bösenberg

University of Stellenbosch

1970 Prof PA Foster

1988 Prof AR Coetzee

University of the Orange Free State

1972 Prof MJ Ungerer

1979 Prof JM Hugo

1988 Prof MJ Ungerer

1994 Prof BJS Diedericks

University of MEDUNSA

1978 Prof JE Combrinck

1979 Prof JL Couper

1990 Prof MD Bomela

1997 Prof JLA Rantloane

'Thank you for your letter of 28th September in which you raise the matter of the request of the Society of Anaesthetists for the creation of a Chair of Anaesthesia.

It is quite certain that we could not at the moment, for financial reasons, contemplate any step of this kind. With regard to your suggestion that the creation of an associate Professor of Anaesthesia might be a satisfactory compromise, I should point out that the promotions to which my letter referred are *ad hoc* promotions on the grounds of special individual merit. In considering candidates for such promotions one does not take into account departmental requirements, or need for increased establishment. For such purposes other machinery, that of Priorities Committee, exists. Yours sincerely.'

In a letter from Professor JF Brock, Department of Medicine, Medical School, University of Cape Town dated 5 March 1964 and addressed to the Dean of the Faculty of Medicine :

"Kindly convey my apologies to the Faculty Board subcommittee on new Medical Chairs, March 13th. I can associate myself fully at the Faculty Board stage with request for Chairs of Psychiatry and Anaesthesia, but I feel that we would be negating many previous conclusions if we did not mention in the same breath the Chair of Medical Biochemistry in the second year. If your subcommittee is prepared to put all three Chairs forward without indication as to priority I would be agreeable. The University could always refer back at a later stage for our opinion on priorities."

A draft memorandum⁶¹ in support of the creation of this Chair of Anaesthetics, within the Faculty of Medicine was issued by the Dean's Office, Medical School on 10 March 1964 in which the cost quoted was 51% of R8100-00, in terms of the Joint Agreement = R4131-00 per annum.

A summary of the state of the Department was given as follows:

Staff.	<u>Full time</u>	<u>Full time</u>
Consultants:	Grade II – 1	Registrars: 15 plus postgraduate
	Grade III – 3	students not on Joint Staff
	Grade IV – 6	
	Grade V – 3	
	Grade VI – 2	
	Part time 11 sessions	
Commitments.		
Teaching:	(a) Undergraduate – One lecture weekly during the first half of 1 st term to 5 th year students.	
	Practical instruction and demonstration daily throughout 5 th year.	

(b) Sister Tutors Course – 6 lectures per course.

(c) Postgraduate – This forms the major teaching commitment. Formal tutorials and clinical meetings are held twice weekly. Clinical instruction daily in operating theatres.

(d) Service load. Annual anaesthetics administered – 22,000 approx. Respiratory resuscitation service and consultation.

Cape Town had the largest anaesthetic department in South Africa both as regards the number of staff and trainees. There have been 22 MMed (Anaes) graduates from the University of Cape Town.

It is of interest to note what such a Professor felt about his promotion and the author quotes correspondence from Professor Kok to Professor Bull.⁶²

“....In 1960 I was promoted full Professor in Anaesthetics but all this made no difference to my pay because, as Chief Anaesthetist of the Pretoria General Hospital, my salary was the same as that of the Chief Physician or Chief Surgeon, although as far as the University is concerned they had the titles of Professors. Now that I am a professor I am forced to join the University Pension Fund, which is really a benevolent fund, and you get a lump sum on retirement. The University has no Widows and Orphans Fund and I loose all my contributions up to date to this fund. Financially speaking, I am, therefore, worse off as a professor than as a senior lecturer because as a senior lecturer, I was still a member of the Provincial Pension Scheme.....”

Salary scales were as follows in 1960:

Professor	R8100-00
Senior Anaesthetist	R5850 - 150 - 6150
Anaesthetists Grade I	R5400 - 150 - 5700
Medical Officers Grade I	R4080 - 4200 - 4350

THE ANGLO AMERICAN & DE BEERS ANAESTHETIC RESEARCH FUND

Almost coinciding with the inception of the Chair of Anaesthesia, was the grant of R80,000-00 to the Department to form the Anglo American & De Beers Research Fund. How this initial, independent fund under the sole discretion of the Department of Anaesthesia impacted on research, is described in the chapter on research by Professor Gaisford Harrison.

The origin of this fund is worth recording. In about December 1866 a stone was picked up on the western side of the Orange river, on the farm De Kalk, near Hopetown. It was for a long time used as a plaything by the children of a Dutch farmer called Jacobs. A visiting Dutch farmer, Schalk van Niekerk saw this stone and thought it was rather a rare stone, felt its weight which was heavy, and offered to purchase it from the mother. She, however, scoffed at the idea of selling a mere stone and gave it to him. Van Niekerk then took it to O'Reilly. John Robert O'Reilly was the son of a former Civil Commissioner of Somerset East, a hunter and a trader. O'Reilly in turn sent it to Dr William Guybon Atherstone, who was the first person to positively identify it as a diamond – later to be called the *Eureka*.⁶³ It was at one stage also called the *O'Reilly* diamond.

Dr William Guybon Atherstone (1814-1898)^{64, 65, 66, 67, 68, 69} of Grahamstown and son of Dr John Atherstone, a district surgeon in the Albany District who had come to South Africa as an 1820 settler, was a student of the Universities of Dublin and Heidelberg. When William was appointed District Surgeon of Grahamstown he became a landmark in the colony because of his varied interests. He was called the father of South African geology and for his original work he was elected a Fellow of the Geological Society of London. It was he that first pronounced the stone to be a true diamond, and it was he who predicted the vast mineral resources of the Transvaal. He was an anthropologist, a fair artist, a musician, an astronomer and a keen botanist.

On 16 June 1847, Dr William G Atherstone, using a simple contrivance somewhat resembling a Turkish narghili or hubble-bubble, anaesthetised the Deputy Sheriff for Albany, Mr F Carlisle with ether, for the operation of amputation through the distal third of the thigh. This was the first anaesthetic for a *major* operation, which was successful, in South Africa.⁷⁰

These two events were brought to the attention of the Anglo American-De Beers⁷¹ Board whose Centenary celebrations co-incided with the inauguration of the first Chair of Anaesthesia. This process was initiated by Dr Nellie Downes, step-mother to Dr Michael Euston-Brown, the ophthalmologist at Groote

Schuur Hospital. At that time she was an anaesthetist in George and it was Nellie who prompted the medical officer, a personal friend, to propose this idea to the Board.

The money was earmarked to provide additional staff and equipment for teaching and research in the Department of Anaesthesia at the University's Medical School. Dr JP Duminy,⁷² the Principal of the University of Cape Town, announced amongst other things, "The growing importance of anaesthesia in all the main streams of medical education is widely recognized today. Many developments considered to be major advances in other branches of medical science stem from advances in anaesthesia. It is clear that teaching in anaesthesia can no longer be regarded as ancillary, but must be treated now as a subject in its own right".

The Department of Anaesthesia was engaged in a variety of research projects at this stage and it was felt that it should be part of the function of the Department to arrange visits to smaller centres and to provide refresher courses for medical practitioners at the University's Medical School .

"In these and other ways the University plans to use this most generous gift for the greatest possible benefit of the community as a whole".⁷³

On 9 December 1975 Mr Harry Oppenheimer, Chairman of the Anglo American and De Beers Corporation, accompanied by his wife, visited the departmental research laboratory, to show his interest and to acquaint himself with the work being done there.

THE JOSEPH STONE FOUNDATION FOR RESEARCH

In June 1966, the Department of Anaesthesia received a further grant, this one from Mr Joseph Stone. Mr Stone was a well known Cape Peninsula race-horse owner and entrepreneur. Besides his several gifts to the University of Cape Town and 108 other charitable organisations, his benefactions totalled over R1 million. Credit must be given to Dr Norman Smiedt, one of our senior part time anaesthetists for assisting the Department of Anaesthesia by lobbying Dr Joseph Stone for this grant. This grant of R40,000-00 formed the basis of the Joseph Stone Foundation for Research.^{74, 75, 76}

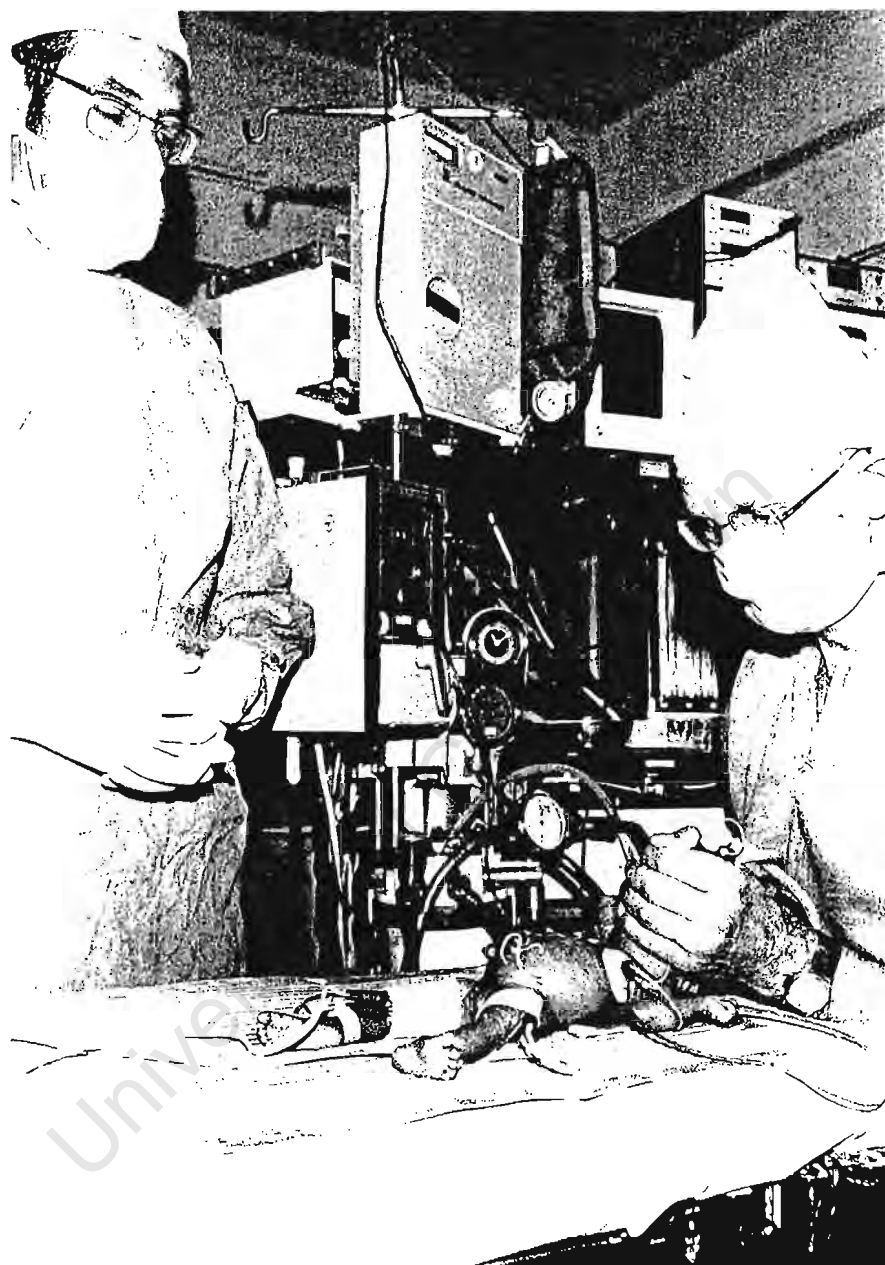
In 1966 Dr Harrison was awarded the MD(UCT) for his Thesis: "Death due to anaesthesia – its incidence and some associated factors." This was one of his research projects which was continued thereafter finally covering a period of thirty years and earned him international respect. It was also a project which launched him into a career of distinguished research in various fields, and one which brought him many accolades in the years to come. Did this research make a difference? The answer is a definite yes.

Dr Royden Muir, one of the pioneer anaesthetists in pre-war Cape Town surveyed the first 18 months activity in the Main Theatre, Groote Schuur Hospital which opened in 1938.^{77, p15} He reported 14 deaths occurring during anaesthesia in the first 2216 general surgical operations performed in the hospital – a rate of anaesthetic associated death of 6.22/1000 anaesthetics. The comparable figure from Harrison's survey for the years 1956-65 was 1.1/1000 – these figures were for general surgery only.

The topics of the Safety of Anaesthesia and the Epidemiology of Death Attributable will be discussed later under the subjects of research and Professor Harrison's Inaugural Lecture. Other aspects of development in the Department, which could also be construed as research, since they were both innovative and original, would be the development of clinical anaesthesia. Two of the fundamental ones at the Red Cross Hospital and at Groote Schuur Hospital would be the advance in paediatric surgery for the separation of conjoined twins, and later the first heart transplant. An elaboration on these would be in order. In the former field, the Department of Paediatric Surgery and Anaesthesia has gained international reputation for its expertise.

SEPARATION OF CONJOINED TWINS

Paediatric surgery under the skillful hands of Professor Jannie Louw and later of Professor Sidney Cywes⁷⁸ at the Red Cross Children's War Memorial Hospital⁷⁹ was progressively advancing to operations of increasing complexity and duration. Providing anaesthesia for such complex procedures was academically and practically demanding but both Arthur Bull and Tom Voss rose brilliantly to the occasion providing an anaesthetic service *par excellence*. Anaesthetic equipment was still rudimentary, paediatric anaesthesia was still in its infancy and much improvisation ensued. They were in later years assisted by Dr Petro Malherbe.⁸⁰



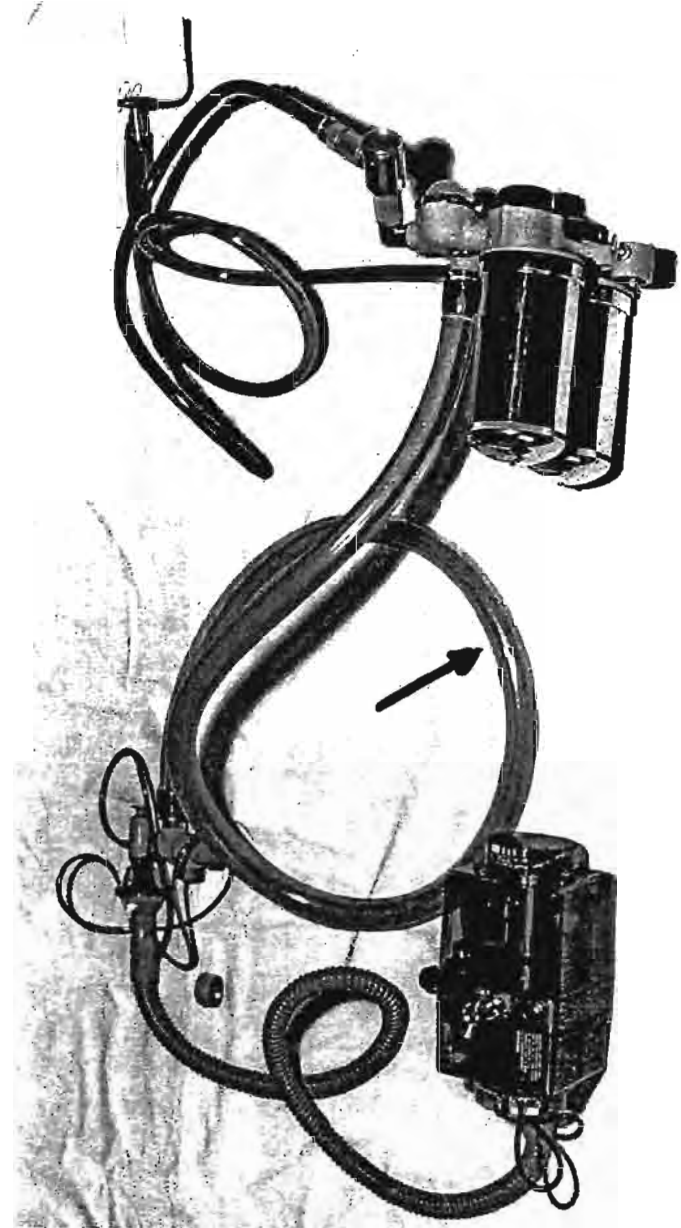
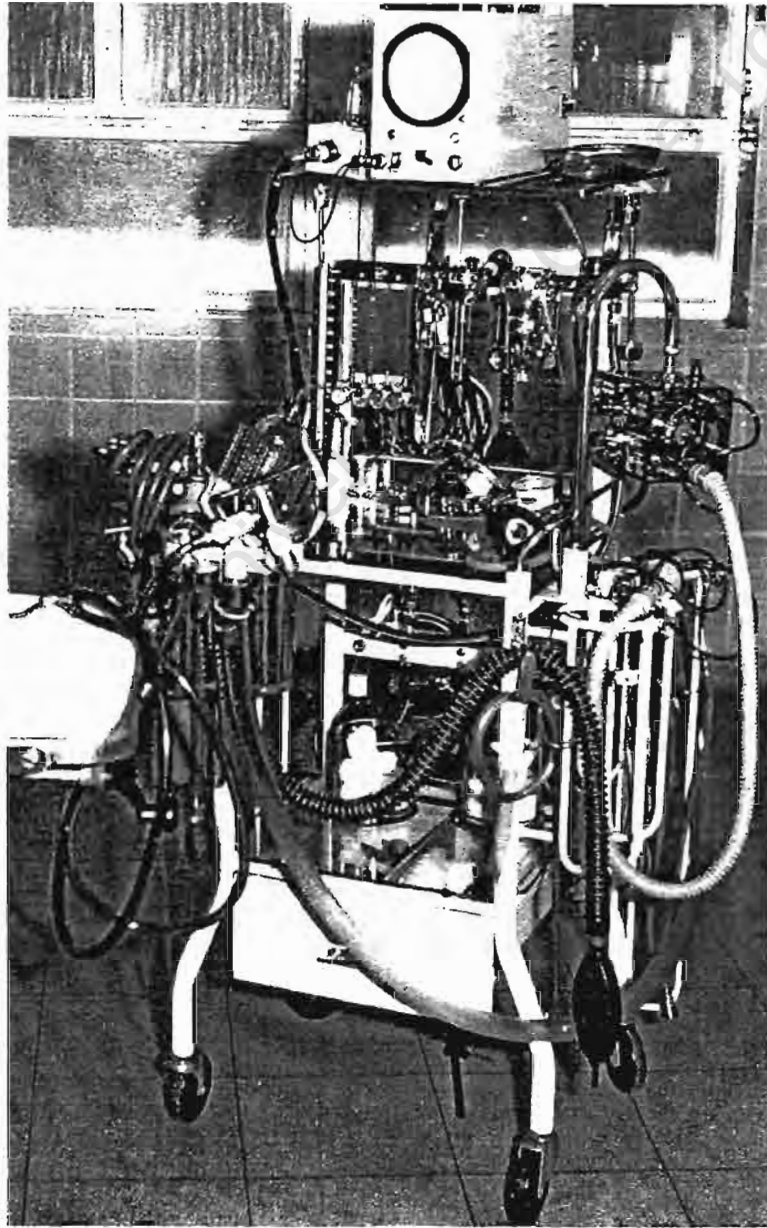
On 12 November 1966, the Siyepu conjoined twins were born, spontaneously delivered, in Butterworth, Transkei. The combined weight was 7.5 lbs. They were joined by a bridge which extended from the 7th costal cartilage 7cm downwards to a common umbilicus – *thoracopagus* variety. The twins were airlifted to the Red Cross Children's Hospital where 99m *technetium* liver scanning demonstrated a connecting bridge of liver. Several other intricate investigations were conducted. Surgery was planned, and rehearsed four days after their arrival.⁸²

This was not, however, the first attempt at separation of conjoint twins in Cape Town. In 1964, a set of *craniopagus-occipital* twins were born. They were connected at the cranial fossa posteriorly. The twins presented at Groote Schuur Hospital at the age of two months, weighing about 3kg each. A team consisting of neurosurgeons Drs DeVilliers Hamman, PW Keet and anaesthetists Drs Gaisford Harrison and Tom Voss attempted the separation in February in the J4 theatre. The venous sinus anatomy rendered separation impossible and 1 twin was sacrificed by cerebral evisceration. The 2nd twin died of exsanguination from large venous sinuses after 6 pints of blood transfusion.⁸¹

Reports indicated that by 1966 well over 400 cases of conjoined twins had been described world-wide, of these, only 26 cases that came to operation have been reported in the English literature. Of these 26, only 14 were reported to have immediate survival but in only 10 instances have both babies survived separation long term.

In the November 1966 separation Professor Bull and Dr Tom Voss were the anaesthetists and they have described the anaesthetic procedure in detail. The surgical team consisted of Professors Jannie Louw and Sid Cywes. For the sake of history it would be prudent to recall this special event. This was the first successful separation in Cape Town.⁸²

'The theatre was airconditioned and the temperature set at 26°C. In addition, body heat was maintained by placing the twins on a warming blanket through which water at 43°C circulated and by covering the babies with warmed gamgee tissue until they were exposed for surgery. Temperature



monitoring thermistor leads were placed in the rectum of each child.....no drop was recorded throughout the procedure. Standard ECG limb leads connected to a monitoring oscilloscope were attached to each twin and infant sized oscillotonometer arm cuffs used to record blood pressure. Oesophageal stethoscopes were placed in position.

Anaesthesia was induced in each twin independantly at 8.30pm with nitrous oxide, oxygen and halothane administered via a 'Cape Town' anaesthetic circuit ⁸³ and oral intubation performed. This was easy as mobility between head and neck was adequate. During induction of the first twin, no noticeable anaesthetic effect in the second twin was discernible.

We were unable to detect any curarizing effect on twin II from the diallyl-nortoxiferine (alloferin or alcuronium) administered to twin I. Following induction and intubation the twins were maintained on nitrous oxide 4 litres, oxygen 2 litres and diallyl-nortoxiferine 0.25mg.(twin I) and nitrous oxide 4 litres, oxygen 2 litres and halothane 0.5%-1.0%. Respiration was controlled with an automatic ventilator and expiration monitored with an infant respirometer (twin I) while IPPV was maintained manually via a T piece and a bag ⁸³ for (Twin II) who received no relaxant. When the relaxant in twin I wore off after 30 minutes, halothane was added.

IV access was by 18g plastic cannulae on the dorsum of the foot and another into a wrist vein. Because of the possibility of adrenal dependance of one twin on the other, both were given 50mg hydrocortisone IV at induction. Anaesthesia lasted 130 minutes during which the blood pressure remained between 70-90mmHg. No ECG changes were observed. Blood loss was measured colorimetrically and replaced, plus 10% of the estimated blood volume. Twin I had 40ml and twin II had 50ml blood. The blood was heated by radio frequency induction. The entire anaesthetic was uneventful.” ⁸²

In salute of this achievement Professor Cywes has intimated to the author (2001) that each twin is now 34 years of age and each has a healthy child.

Since 1964, 34 sets⁸⁴ of conjoined twins have been separated at this institute. In the latest set, the Alphonse conjoined twins, eight months old, from Tanzania were separated after a gruelling marathon procedure lasting 14 hours, in July 2000. In this case the twins were joined at the spine and the spinal cord. A team of 22 medical experts worked through the night. The anaesthetic team of four was headed by Drs Jenny Thomas with Tessa Lopez. The actual separation was preceded by a laparoscopy, a colostomy, separation of the spinal cord by the neurosurgeons and then the division of the soft tissue.. Initial examination prior to their discharge showed no evidence of any neurological deficit.⁸⁵

Providing anaesthesia for conjoined twins is challenging for attending anaesthetists. Anaesthesia may be necessary for complex investigations and surgical procedures pre-separation eg. cardiac catheterisation and often the insertion of tissue expanders, where indicated. These are usually placed 6-8 weeks before separation. In the *thoracopagus* variety, the severe opisthotonic position aggravate difficulties with deglutition and gastro-oesophageal reflux, causing recurrent aspiration with episodes of apnoea and infection, necessitating respiratory support. These pre-separation procedures provide valuable insight into potential or actual problems that may arise at the time of separation. Assessment of the airway is crucial. Cardio-pulmonary resuscitation may also be difficult especially in the *thoracopagus* type. Vascular access is often difficult and monitoring should be invasive in both babies.

As an addendum, it is of interest to note from the 2001 Guinness Book of Records, that the oldest living (unseparated) Siamese (conjoint) twins are Masha and Dasha Krivoshlyapovy of Moscow, Russia, who were born on 4 January 1950. They are *dicephales tetrabrachius dipus* twins, meaning that although they have separate torsos, they share a single pair of legs.⁸⁶

The mind boggling, rapid development of anaesthesia, respiratory and critical care medicine as well as the profound advancement of surgery of increasing complexity, made possible by the former advances, saw the increasing introduction of complex anaesthetic, monitoring, ventilatory and other sophisticated equipment. There was thus an urgent need for the maintenance and modification of such equipment to suit the needs of the day. This was achieved by the equipment technicians.

EQUIPMENT TECHNICIANS

1963 saw the employment of the first full time Equipment Technician Mr Alan F Gregory in the Department. Later this role was taken over by Mr Don Capp. Initially the anaesthetic machines were serviced by Afrox, the suppliers. But now, with these in-house technicians there was an improvement in the maintenance problem of the ever growing armamentarium of anaesthetic equipment. However, this service dealt only with respiratory equipment and made no provision for the increasing amount of sophisticated (then) electronic recording and monitoring equipment. The lack of blood gas laboratory facilities was solved by the installation of the apparatus using the Micro-Astrup technique ⁸⁷ in the laboratory space adjoining the B2 surgical theatres in 1967. It was used for all major surgery and cardiac surgery in particular. This service extended to the respiratory patients in the wards as well.

With the gradual incorporation of technologically advanced anaesthetic equipment into the operating theatre, the maintenance of such equipment became a problem. Until the early 1960's, the Department had to rely on the suppliers of such equipment for both repairs and maintenance. Professor Bull records "This was not always satisfactory and modernization and replacement always required a deal of prolonged motivation in hospital committees to have any degree of success". ⁸⁸ The technological care of equipment was later taken over by the Provincial Hospital's Central Workshop from which we had a great deal of co-operation, most notable from Mr Alan F Gregory. Mr Gregory was first at GSH as a technician, then moved to the Central Cape Provincial Administration workshop as its Chief Technician. Once the advantage of proper maintenance and repair of equipment was realized by the authorities, a full time anaesthetic equipment technician, Mr Basil Canovi was appointed to the Department. Basil worked in Groote Schuur Hospital while Alan Gregory was stationed at the larger CPA Workshop in Goodwood and with the development of the Respiratory Intensive Care Unit ⁸⁹ and its sophisticated equipment, a further post in the Department was created. This post was occupied by Don Capp ⁹⁰ until his retirement in 1985 when he was succeeded by Anton Fourie ⁹¹ as the Chief Clinical Technologist.

Anaesthetic Technicians

1963 – 1966	Mr Alan F Gregory
1972 - 1986	Mr Basil Canovi

Equipment Technicians



A Gregory



B Canovi



J Lit



P van Niekerk



E Cassiem

Laboratory Technicians



B Sasman



H Stuurman



T Markus

1980 - 1986	Mr Ebrahim Cassiem
1981	Mr Sonny Crous
1981 - 1997	Mr Paul van Niekerk
1982 – 1989	Mr Jan Lit
1989	Mr Stewart M Craig
1993	Mr D Niehaus
1996 - 2000	Mr R Maquire

Professor Bull wrote “These technicians did much to help in various developmental fields. In particular I would like to single out the part they played in the modification of equipment during Professor Smythe and my work on neonatal tetanus.”^{p 55, p 69} After my return from the WHO Travelling Fellowship in 1964, I had motivated the necessity and advantage of in-theatre monitoring of acid/base balance and persuaded the hospital to acquire an Astrup Machine for this purpose. This was initially run by myself and it was much later taken over by the Chemical Pathology Department. This service was in great demand and it led to the Department acquiring our first Laboratory Technician Frumilla North.

1967 THE FIRST HEART TRANSPLANT

Mention has been made earlier of the disastrous attempt at open heart surgery under the heading ‘cardiothoracic anaesthesia – the beginning’ when the Chief cardiac surgeon operated upon a patient using the oxygenator pump for the first time at Groote Schuur Hospital. This was the beginning of a learning curve for all members of the team.

The young and dedicated Chris Barnard⁹² had been awarded an MD for a thesis on meningitis and a subsequent MMed (UCT). Armed with these qualifications he applied for a registrar’s post under Jannie Louw, who had become an associate professor in 1954 and senior surgeon, under Professor Erasmus. Barnard was accepted. It was soon thereafter that he started experimenting in the animal laboratory in the evenings. Since the animal house had no dogs, Chris collected them from the city pound – these were stray dogs destined for termination. With a hastily set up ‘make-do’ theatre, experiments began on these dogs for cardiac surgery under hypothermia. With the assistance of the Department of Anaesthesia by way of Dr Sarel Knipe initially, the dogs were cooled by circulating iced water through a balloon inside the dogs stomach.⁹³ The initial operations were done by Dr Dennis Casserly, a thoracic surgeon as Chris did not yet then have the necessary skills. Once the dog had been cooled, the major veins to the heart were clamped,

the heart was opened, the tricuspid valve exposed and then the heart closed. Eight minutes later the clamps were removed and the dog rewarmed. The next morning the dog died. So did the next four, but not the fifth. This was as a result of correcting the calibration of blood flow and avoiding air embolism. Over the months a large experience in hypothermic technique and anaesthesia had been obtained.

The next research project on these dogs, also involving the Department of Anaesthesia, was the tying off of the blood supply to part of the intestine to mimic intestinal atresia. Thereafter Barnard left for the University of Minneapolis in USA, to work with Professor Wangenstein. Under Professor Wangenstein's guidance, Walter Lillihei and Dick De Waal had built a bubble oxygenator that was used for almost 40 cardiac operations. It was here that Barnard gained valuable experience in the use of the pump oxygenator. On his return to South Africa, he arranged for a De Waal-Lillihei bubble oxygenator to be brought home.

The pump was now assembled in the surgical research laboratory – two rooms in the pathology museum building. After losing a few more dogs, a further twenty four operations of increasing complexity, were performed. The main anaesthetists involved at this stage were Drs Bull, Harrison and Ozinsky and they all became very proficient in anaesthetizing both dogs and baboons. The pump time was eventually extended to almost an hour and a half so that intricate operations like Fallot's Tetralogy or valvular incompetences could be handled. The team was now ready to move into an operating theatre, performing cardiac surgery on humans.

Their first operation using the bubble oxygenator on 29 July 1958, was on a fifteen year old girl J P who had a pulmonary valve stenosis. The anaesthetist was the now renowned Dr Ozinsky. Although there were some intraoperative problems, the patient survived. After this success a few more atrial septal defects were corrected. Some of them were performed under hypothermic arrest. The twelfth patient, a twelve year old girl, however, had complicated cardiac pathology – pulmonary and aortic stenosis as well as an atrial septal defect. She unfortunately died on the table while undergoing correction of these complex congenital defects.⁹⁴

In 1954 a new pathology wing was opened, and the vacated pathology museum was now converted into the Jan S Marais Surgical Research Laboratory⁹⁵ for experimental work on large animals. In 1966 extensions to house 75 dogs were added to the animal house. In addition to the improvement in research facilities, attempts were now made to create a full team who could handle all the techniques needed in open cardiac surgery. This included nurses, surgeons, anaesthesiologists, pump technicians and links with the blood bank, biochemists, bacteriologists and cardiologists to name but a few. Groote Schuur hospital already had a cardiac unit *par excellence* built up over the years through the efforts of Professor Velva 'Val' Schrire⁹⁶. In 1958, Chris Barnard returned from the USA and initiated the foundations of the present JS Marais Laboratory. With the blossoming of research at the Medical School there was a very great need for a dedicated laboratory. The old animal house was directed by Mr Kooij, and was a chaos of small rooms, small cages and small animals. Readers are directed to the excellent monograph by Professor Rosemary Hickman⁹⁷ on the JS Marais Surgical Laboratory – 21 Years Old⁹⁸ which also served as a 'Festschrift' for Professor Jannie Louw on his retirement in 1980. The initial staff consisted of Jannie Louw and Carl Goosen, a medical technician, who was for many years in charge of the heart-lung machine. In addition there was Victor Pick, a coloured technician who did all the anaesthetics, the operations if the surgeon didn't know how and the procurement of equipment from various departments. The other assistants were Llandela and Hamilton Naki. Hamilton was one of the black cleaners initially, but was often asked to help out with the research. He could not read or write but within two weeks acquired sufficient knowledge of anaesthesia and fluid replacement. It was Hamilton that taught our budding research anaesthetists how to administer an anaesthetic to these animals. Professor Del Kahn,⁹⁹ Head of the Department of Surgery, who succeeded Professor John Terblanche, at his Inaugural Lecture in September 2001, paid handsome tribute to Mr Hamilton Naki and acknowledged that it was Hamilton who taught him many of the intricacies of liver transplantation.

In the early 1960's, the Department of Cardio-thoracic Surgery of the University of Cape Town Medical School embarked on a research programme as a preliminary to heart transplantation in humans. Medical literature showed that the surgical technique of replacement had been developed over many years by a number of research workers, beginning as far back as 1951. Chris Barnard with his colleagues – his

brother Marius Barnard and Terry O'Donovan- spent many months practising this technique in dogs until they had learnt it to perfection.¹⁰⁰

The next step was to learn the principles of immunosuppressive therapy, in order to control the acute rejection which would almost inevitably occur in the transplanted heart. Barnard gained experience in this by spending 3 months working with the kidney transplant team headed by the late David Hume in Virginia and a further 2 weeks with Dr TE Starzl of Colorado. On his return to South Africa, Dr Barnard performed a renal transplant on a lady, Mrs Black, so that the institution could gain experience of what was involved in the care of immunosuppressed patients. This was the only kidney transplant that Chris did. Mrs Black lived for over twenty years and he was able to boast a 100% patient and graft survival for 20 years.

101

On December 2, 1967 a young girl Denise Darvall, 24 years old, was fatally injured in a motor vehicle accident on Main Road, Observatory, Cape Town. She had parked her new car and along with her mother, got out to buy a cake at a bakery store. Moments later, Mrs Darvall was killed and Denise suffered multiple major injuries. She was rushed through the corridors of Groote Schuur Hospital, placed on mechanical ventilation and received intensive resuscitation. By approximately 22h00 that evening, the neurologists had declared her brain dead¹⁰². In another room lay Mr Louis Washkansky, dying. His cardiologist Professor Velva Schrire had decided that nothing further, medically, could be done for him but he had identified him as a potential heart transplant recipient and Denise was to be the heart donor. It is historically remarkable that Mr Darvall, despite this horrific tragedy in his life, readily consented to donating not only his daughter's heart, but her kidneys as well.

On the December 3, 1967, at 00h45 Miss Darvall was taken to the B2 operating theatre¹⁰³ and continued on artificial ventilation with an isoprenaline drip at 20 minidrops per minute in her left arm and a blood transfusion drip in her right arm. 10 minutes later, the recipient Mr Washkansky was wheeled into the anaesthetic induction room. "This isn't going to put you to sleep, Oz said. Its pure oxygen. They give it to the athletes to make them break records". Dr Ozinsky, assisted by Dr Cecil Moss¹⁰⁴, then induced the

patient with thiopentone, and intubated him after a dose of scoline. Mr Washkansky was now moved to the operating room where anaesthesia was continued with nitrous oxide, oxygen, a curarizing dose of muscle relaxant and intermittent halothane, a non irritant inhalational anaesthetic with a not unpleasant smell ^{p108}.
¹⁰⁵ This was by now, standard procedure and no anaesthetic problems were encountered throughout the operation.

Preparations were then made for placing Mr Washkansky on cardiopulmonary bypass. The use of the heart lung machine had by now become a familiar procedure at Groote Schuur Hospital. The bypass pump was a technical marvel which has been responsible more than any other factor, for the development of open-heart surgery as we know it today. After the paralysing effect of the scoline had worn off, Dr Ozinsky continued ventilating him with a mixture of oxygen, nitrous oxide and halothane. The cardiothoracic surgeons Dr Chris Barnard and Dr Rodney Hewitson, (one of few gentleman surgeons) ¹⁰⁶, then proceeded to place the patient on cardiopulmonary bypass, and continued with the first human allogeneic transplant. The operation lasted 5 hours. The rest is history and volumes have been written about this 'ultimate event'. Chris Barnard, the Karoo boy from Beaufort West, had this to say "The heart is only a pump", but with his distinct Afrikaans accent in the early days, it sounded like 'pomp'.

Mr Washkansky survived for eighteen days but succumbed to the new entity 'transplantation lung' ^{107, 108}. It is serendipitous that the first donor of a heart, in view of the prevailing political climate in South Africa, was of the white race group. Had it been otherwise, and Barnard was well aware of this, who could foretell or prognosticate how world opinion of a pariah state, could have influenced any further progress in transplantation of organs, a matter which has become routine and acceptable in all parts of the world today. A month later on 2 January 1968, the second heart transplant was performed on a dentist Dr Philip Blaiberg. ¹⁰⁹

A further description of events prior to the induction of Mr Washkansky is described in 'One Life' ¹¹⁰ "He was to be put to sleep and Sister Fox-Smith suggested he now lie ready back flat on the table.

‘Can’t you do it while I’m sitting up?’ ‘No’, she said”. “You have to recline, said Dr Ozinsky. These surgeons are worse than movie stars. They don’t like anyone stealing the limelight.”

(The cardiac surgeons at Groote Schuur, with the exception of one or two at most, all suffered from a primadonna mindset and quite often this was in inverse proportion to their height, but having said that, I must confess it was a pleasure working with all of them. NP.)

“That was Ozzie, whose broad knowledge of modern anaesthesiology was coupled with a deep understanding of both patient and surgeon. He had brought Washkansky down from the ward, talking to him in a way that helped him remain calm and ready for the moment – doing all this, while previously bringing Denise Darvall into the adjoining theatre.”

“The anaesthetist had become a major figure in modern surgery. He protected the patient from surgical trauma and damage, using as few drugs as possible – checking blood pressure, venous pressure, control of respiration, acid level, pulse rate, urine output and cerebral reflexes. In effect, he was both caretaker of the sleeping body and its physiological bookkeeper. Without an anaesthesiologist such as Dr Ozinsky, no transplant or major heart operation would be possible. Besides all this, Ozzie had a special blend of cool skill and warm humour which made him invaluable. He was also a bit of a psychologist”¹¹¹

THE HUMAN HEART TRANSPLANTATION SYMPOSIUM

In the period 13-16 July 1968, an international symposium comprising of the world’s heart transplant surgeons was held at the Beattie Theatre, University of Cape Town. The meeting was to provide the first opportunity for a unique exchange of views and experiences, all the discussions were totally informal and a lively dialogue ensued. At the end of the proceedings, a 290 page bound volume was published¹¹². It made for interesting reading and some notable facts emerged : The entire meeting was sponsored by the Provincial Administration of the Cape of Good Hope, all the delegates were flown here by first class and had all their expenses paid.¹¹³ Dr Nico Malan was the Administrator of the Cape Province and Dr LAPA Munnik, the MEC, both of whom were praised for the wonderful job of making this money available at such short notice. Professor PK Sen one of the transplant surgeons and a citizen of India, was

also invited and welcomed. This in itself was extraordinary, considering that the ruling government was the Nationalist Party whose mainstay was 'apartheid', separate but 'equal'. It was this policy that led to the Republic of South Africa becoming a pariah nation in the eyes of the international community and was shunned by most but certainly not all. This unique meeting therefore represented a major coup for the South African Government and the Administrator in his euphemism stated ; "The Cape Town meeting represented a further noteworthy achievement in that it surmounted barriers to international co-operation and understanding which all too frequently hamper progress in this divided world of ours." ¹¹⁴ To top it all, throughout the four days of discussion about heart transplants, not once was anaesthesia or the role of the anaesthesiologist mentioned !

At the 25th Anniversary of the heart transplant, Ozzie commented "It felt like an ordinary, standard case at the time. The fuss came afterwards." he said . In his view, the transplant was the next logical step in medical science and the time was ripe for somebody in the world to attempt it. The Groote Schuur team had been performing open heart surgery for some time, which involved stopping the heart and putting patients onto the heart lung machine which explains why Dr Ozinsky said 'I had every confidence the heart would start again.'

And of all the fuss, he said curtly: ' Lots of lies were told afterwards – most of it was tripe.' ¹¹⁵

Dr Ozinsky continued in his role as Chief Cardiac Anaesthetist right up to his retirement in 1992 when his post was taken over by Dr Sylvia Heijke. Anaesthesia for transplantation had become quite routine in the Department. Professor Barnard retired in 1983 and Professor Bruno Reichart from Munich, Germany took up his appointment as the first incumbent of the Chris Barnard Chair of Cardio-Thoracic Surgery at the University of Cape Town.

For those of us involved in heart and heart-lung transplantation, it was quite an experience to suddenly encounter an emptiness in the thorax, where moments before, a heart had been actively beating. Even a hardened person would find it difficult to control one's inner emotions. Was this an act of meddling with the divine? In the *Svetasvatara Upanisad* it is stated 'God, the maker of All, the great spirit ever

seated in the hearts of creatures, is fashioned by the heart, the understanding and the will. They who know become immortal.’¹¹⁶

From December 1967 (first heart transplant) to August 1987, 110 heart and 12 heart-lung transplants have been performed at Groote Schuur Hospital. Until 1985 the number of procedures per year did not exceed 10. Hereafter the number increased and in 1986, 22 transplants were done. Ten patients required retransplantation.¹¹⁷ In the same year in October, Dr John Hewitson, son of Professor Rodney Hewitson (who was the second surgeon in the first heart transplant) assisted by Dr Johan Brink, with Chief Anaesthesiologist Dr Sylvia Heijke, performed the first single lung transplant in South Africa. The total number of heart transplants decreased to 16 for 1997. This was a remarkable achievement in spite of a lack of organ donors, severe staff cutbacks and financial restraints ordered by the Department of Health.

To date an estimated 100,000 heart transplants have been performed around the world. About 2100 heart transplants are routinely performed annually in the United States alone, with a one year success rate of 85-90%, and a five year success rate of 75%. Barnard's most important contribution was his courage to proceed with a transplant on a human, while others were still operating on animals.

A word about Dr Ozinsky would not be inappropriate.

PROFESSOR JOSEPH OZINSKY

Professor Ozinsky was born on 1 January 1927 of Polish parents and schooled at SACS where he was a Queen Victoria Scholar. He was subsequently a SACS Memorial Scholar at the University of Cape Town qualifying MBChB there in 1949. In 1950 he was Casualty Officer and then a registrar in anaesthetics at Groote Schuur Hospital, had a short spell in anaesthetics at King Edward VIII Hospital in Durban in 1953 and returned to Groote Schuur Hospital in 1954. A year later he served as registrar at the Barnet General Hospital, London and in 1955 obtained his DA RCP(Lond) RCS(Eng) and DA RCP&S (Ire). In 1960 he was a Foundation Fellow with the FFA RCS (Ire).

Oz returned to South Africa to the Red Cross War Memorial Children's Hospital working his way through consultant to associate Professor in the Department of Anaesthesia, UCT in 1990.¹¹⁸



34 President Jim Fouche presenting the SASA Gold Medal
To Dr Joseph Ozinsky

At the Silver Jubilee South African Society of Anaesthetists' Biennial Congress held in Bloemfontein, in July 1968, the State President Mr Jim Fouché, presented Dr Ozinsky with a gold medal for meritorious service, on behalf of the Society.^{119, 120, 121}

An alarming episode in his career is worth recording. At the first Saturday morning Departmental academic meeting in February 1977, Dr Ozinsky passed out and woke up with a right hemiparesis and an aphasia. Fortunately, this was transient and he had a full recovery, with nothing revealed on full investigation. Within a few weeks he was back in the saddle and at Case Presentations, he opened the proceedings with his epitaph :

*He died not in church
He died not in Shul
He died – while listening
To Professor Bull.*

To which Professor Bull added :

*He listened with patience
He listened in pain
To things he had heard.
Again and again.
Then sleep overcame him
Completely besotted
He relaxed his neck
And kinked his carotid.*

He retired in 1992 but continued his interest in cardio-thoracic anaesthesia in the Department until the end of December 2001. His role in the Department has been recognised as being legendary, he almost singlehandedly administered the day to day running of the Department, managed staff movements of about 90 members, attended to anaesthetic equipment tenders and maintenance and for a while was acting Head of the Department in the absence of Professor Harrison. This role enabled senior members to concentrate on their research. With the vision of the New Groote Schuur Hospital, the forward planning of the theatres and the Department rested to a large extent, on his shoulders. His other attribute was in keeping primadonna surgeons in check. Like all people who are not perfect, Oz, much of a squirrel, had a propensity for hoarding anaesthetic records, advertising material, books and anything disposable that appeared to be of possible use in future - none of which could be found should the need arise.

References and notes:

- 1 The Red Cross War Memorials Children's Hospital was opened on 18 June 1956. In 1945 the South African Red Cross Society announced that it had decided to fulfil a desperate need by the erection of a children's hospital as a war memorial to the members of the services who lost their lives in wartime, and undertook to collect £200,000 towards the cost. A 400 bed institution with plans for extension to 600 beds was envisaged. The site chosen was on the corner of Klipfontein Road, Rondebosch. It included complete pathological, radiological and physiotherapy units, four operating theatres and a lecture room. The hospital when built was a star shaped 6 storeyed building with 160 beds and special accommodation for 16 premature babies. In 1974, an eight storey laboratory block including an Institute of Child Health was added. In 1997 a major revamp took place with the opening of an entire new outpatients block, physiotherapy department, new operating theatres and a general intensive care unit as well as other improvements. This was only made possible by the creation of a Red Cross Children's Hospital Trust and a public subscription of R36,000,000. This was more or less at the same time that the Minister of Health Zuma, saw it fit as one of the means to control the AIDs epidemic, to expend R12,000,000 on the infamous 'Sarafina' play.
- 2 Louw JH. Paediatric Surgery. *Transactions of the Colleges of Physicians, Surgeons & Gynaecologists of SA*. 1960; 4 No 2. October: 14-26
- 3 Jan Albertus Pretorius was born on 26 April 1921 in Dundee, Natal. In 1941 he obtained the Graduate University Teachers Diploma at Pietermaritzburg College. After a short spell in the teaching profession he opted for a career in medicine instead. He graduated MB ChB(UCT) in 1950. After a brief spell in general practice at Greytown and a few months at Eshowe Hospital and King Edward in Durban, he joined the Department of Anaesthesia at UCT. It was here that he pursued a career in anaesthetics. He was killed instantly in a motor vehicle accident on 30 July 1972 cf. Five Decades – The South African Society of Anaesthetists 1943-1993. 1993: 189-192. Obit. Harrison GG and Fiser F. *South African Medical Journal* 1972; 23 September: 1408.
- 4 Thomas James Voss joined the Department of Anaesthesia in 1959. He developed a special interest in paediatric anaesthesia and made important contributions in its development. For this he was appointed *ad hoc* associate Professor of Anaesthesia in 1974. Voss, like Jan Pretorius, was a locum consultant at the Department of Anaesthesia at Cardiff, Welsh National School of Medicine during 1962-63, in exchange with Sam Galloon. He was instrumental in the development of mechanical ventilation in paediatric patients at the Red Cross Hospital and the now familiar 'elephant' tube and Bird Ventilator. He left the Department in 1977 for a career in Australia.
- 5 Petro Henriette Malherbe qualified MB ChB(UCT) in 1950 and obtained the MMed (Anaes) at UCT in 1958. She was senior anaesthetist at the Red Cross Hospital until her retirement in 1981. Many of us are indebted to her for her warmth, her meticulous attention to detail in paediatric anaesthesia and her clinical experience. She retired to Hermanus, Cape.
- 6 Bull AB. Reminiscences. 1998: 4.
- 7 Malan, Marais. The Quest of Health. The South African Institute for Medical Research 1912-1973. 1988: 239
- 8 The City Infectious Diseases Hospital was established in 1899, next to the New Somerset Hospital. It was used as an institution for the training of medical students in infectious and venereal diseases. In the late 1990s, the residence of the medical superintendent was converted to the Cape Medical Museum.
- 9 Alfred Lee J, Atkinson RS. A synopsis of Anaesthesia. 5th Ed. 1964: 211
- 10 Beinart J. A History of the Nuffield Department of Anaesthetics Oxford 1937-1987. 1987: 43-45
- 11 Andrews PWS, Brunner E. The Life of Lord Nuffield. A Study in Enterprise and Benevolence 1955: 298-300.
- 12 Dr Harold Ackerman was the Medical Superintendent of the City Infectious Diseases Hospital.
- 13 Dr Helen Brown was the daughter of Professor Alexander Brown, who was appointed Professor of Applied Mathematics in 1902 and associated with both the SA College and the University of Cape Town. She was also sister to the late Sandy Brown, a surgeon at the UCT. Helen graduated MB ChB(UCT) in 1935. In 1942 she joined the staff of the Department of Medicine as lecturer and in 1954 was appointed Head of a medical firm. She retired in 1982.

- 14 Dr Alex Ferguson was appointed to the Medicine Department of UCT in 1968, having been a clinical and research registrar in the Cardiac Clinic for the past two years. His experience in chest medicine was in the United Kingdom in 1962-1963. For further training he spent 1966-1968 in the USA as a research fellow at the Boston University School of Medicine. Alex was one of the founders of the Respiratory Intensive Care Unit in the corner of the male wards A1 and A5 as well as the Respiratory Clinic. He left the clinic in 1980.
- 15 Bull AB. Reminiscences 1998: 5
- 16 Pat Smythe was senior lecturer in the Department of Paediatrics. In 1967 he was promoted to associate professor and at the end of the same year, resigned from the staff to take up the appointment of Professor of Paediatrics at the Natal University. He died on 23 August 1999. Obit. Bowie MD. Pat Montrose Smythe. *South African Medical Journal* 2000; **90**: 360-61.
- 17 Sykes, Professor Sir Keith – all cases needing respiratory care and therapy in the intensive care unit at the Hammersmith Hospital were referred to him. He joined the Nuffield Department of Anaesthetics in June 1980 as the 3rd incumbent of the Chair of Anaesthetics. Prior to this appointment, he held a personal Chair at the Royal Postgraduate Medical School
- 18 Sykes Keith. The Use of Paralysis and Mechanical Ventilation in the Treatment of Neonatal Tetanus. Proceedings of the History of Anaesthesia Society- Meeting in Leicester. 7-8 July 2000. Volume 27: 52-57 ISSN 1360-6891
- 19 Professor Solly Benatar was appointed Head of the Department of Medicine at UCT in 1980. He along with Peter Potgieter helped introduce flexible fiberoptic bronchoscopy in the Respiratory Unit. He was originally a general practitioner in Port Elizabeth doing anaesthetics part time at both the Livingstone and the Provincial Hospitals until 1969 when he joined the Department of Anaesthesia at UCT. He obtained his fellowship FFA(SA) in April 1971. Benatar was interviewed by Jonathan Golden in *Inyanga* 48th Ed. 1983: 81-83.
- 20 Peter Potgieter was promoted to associate professor in 1986. He played a leading role in applying new invasive diagnostic techniques, the equipping and development of the ICU's and the computerization of the ICU clinical records. Under the steady leadership of Professor Potgieter, assisted since 1983 by David Linton, the ICU has achieved a reputation both locally and abroad for patient care, competent use of technology and research cf. The Respiratory Clinic 1965-1990: The first 25 years.
- 21 The first medical registrar (seconded from paediatrics) to assist Dr Ferguson was Dr Max Klein, who is currently head of the Respiratory Clinic and ICU's at the Red Cross Hospital.
- 22 Bull AB. Reminiscences. 1998: 7
- 23 Beinart J. A History of the Nuffield Department of Anaesthetics Oxford 1937-1987. 1987: 104
Dr Lambrechts graduated MB ChB (UCT) in 1953 and returned to Groote Schuur Hospital after his period of study at Oxford. He left a short while later to take up an appointment as consultant and lecturer at Karl Bremer Hospital and the University of Stellenbosch. Thereafter he entered private practice as specialist anaesthetist.
- 24 Harrison GG. Nuffield Foundation Travelling Fellow in Medicine for South Africa 1961. Report on Activities
- 25 The course occupied two days per week for the first four months of the year. This course gives a complete coverage and exposition of all the basic statistical methods in a logical sequential fashion. Particular attention is paid to the concepts and the mathematical basis behind the statistical methods described. Knowledge of mathematics beyond matriculation standard is not necessary for a proper understanding of the course. The ready availability of demonstrators and lecturers during the practical classes allows for ample opportunity for the explanation of any points that might not be clear.
- 26 Hammersmith Hospital possessed a very fine recovery ward built as an integral part of the main operating theatre suite. This recovery ward also served as a postoperative intensive care unit and as a respiratory unit.
- 27 An alternative technique for inducing profound (below 20°C) hypothermia was popularised by Drew. It was developed when the gas transfer capacity for extracorporeal oxygenators was limited, and required the use of separate pumps to replace the function of left and right ventricles, while the patients lungs continue to oxygenate the blood. Branthwaite MA. Anaesthesia for Cardiac Surgery and Allied Procedures. 2nd Ed. 1980: 165.

- 28 Michael John Rorke's presentation of his work on Maternal and Foetal Oxygenation during Anaesthesia ^{pl15} at the World Federation of the Societies of Anaesthesiologists Congress in London in 1968 was widely acclaimed for its quality. He also presented papers – Aetiology of Progressive Intraoperative Hypoxaemia and Maternal Hypoventilation and the Unborn Foetus at the 25th Anniversary SASA Congress in Bloemfontein in 1968.
- 29 Professor Alex Crampton Smith was appointed 2nd Professor of the Nuffield Chair of Anaesthesia at Oxford from 1965-1979. He was appointed by Macintosh as an anaesthetic registrar at Oxford in October 1947.
- 30 Julien François Biebuyck had joined the Department of Anaesthesia UCT in 1966 and obtained the FFA(SA) in May 1969.
- 31 Sir Hans A Krebs of citric acid and urea cycle fame.
- 32 Literally 'separateness'. A Doctrine enunciated and supported by the National Party of South Africa, and first prominently put before the public in 1949. The doctrine was violently attacked in the Assembly of the United Nations and elsewhere overseas. Professor Jannie H Louw discussed the effects of Apartheid in Medicine in *Pulse* – a medical students publication – in 1978 Issue No 1.
- 33 Parbhoo Nagin. Five Decades – The South African Society of Anaesthetists 1943-1993. 1993: 118
- 34 The South African Society of Anaesthetists was founded in 1943. For the history cf. Five Decades.
- 35 The College of Physicians, Surgeons and Gynaecologists of South Africa was founded by 400 members on 3/4 May 1954. The first examinations for the FFA(SA) were held in September /October 1957.
- 36 A town in the Western Cape Province, established in February 1820 and named after the brother of Lord Charles Somerset, the Marquess of Worcester. It stands on the edge of the Hex River mountains and is one of the most attractively situated towns in South Africa.
- 37 The Maternity Block at Groote Schuur Hospital, housing the MF operating theatres was opened in 1968.
- 38 Professor William Woolf Mushin who was First Assistant in the Nuffield Department of Anaesthetics in the University of Oxford, was appointed Director of Anaesthetics at the Welsh National School of Medicine in July 1947.
- 39 Thompson PW. The Department of Anaesthetics Cardiff 1947-1968. 1968: 50-51
- 40 Bull AB. Reminiscences 1998: 8
- 41 Thompson PW. The Department of Anaesthetics Cardiff 1947-1968. 1968: 51
- 42 Dr Geffen was born in Paarl in 1896. He commenced studies at UCT then went to Dublin graduating in 1921. He practised in Johannesburg for a short while and in 1938, at the age of 42 decided to specialize in anaesthetics.
- 43 *Cape Times* 5 May 1962.
- 44 Bull AB. Bursary in Anaesthetics. *South African Medical Journal*. Letter to Ed. 1962; 26 May: 427.
- 45 Abelson J. Obit. Dr Sam Geffen *South African Medical Journal* 1961; 9 September: 762.
- 46 Lee JA, Atkinson RS. A Synopsis of Anaesthesia 5th Ed. 1964: 343
- 47 Alexander Lee McGregor MCh(Edin) FRCS(Eng), lecturer in Clinical Surgery at the University of Witwatersrand; surgeon at the Johannesburg General Hospital. The first edition of his synopsis appeared in 1932.
- 48 Lee McGregor – A synopsis of Surgical Anatomy. 5th Ed. Reprint June 1945: 510-513
- 49 *Inyanga* 1979 UCT 150 Anniversary. 46th Ed. 49-54
- 50 GLSO 62 P – S Dept.AAE 07-0996 Entity No 8375 Pg 1 16 10 96 a/c UCT
- 51 Dr Goetz was offered £40 to establish a research facility, and when he remonstrated that the amount was insufficient, was awarded another £50. His personal interest lay in peripheral vascular disease and blood pressure control but he assisted many candidates with their theses on various subjects.
- 52 Dr BJ van R Dreyer was awarded a ChM(UCT) in 1955 for his thesis 'Radiological visualisation of the pancreas'.
- 53 *South African Medical Journal* 1980; 19 April: 677-681
- Louw JH. In the Shadow of Table Mountain. 1969: 369

- 54 Ibid. 262
- 55 Phillips H. UCT 1918-1948 The Formative Years. 1993: 324
- 56 Ibid. 335
- 57 Jones CS. A Personal History 1998: 29
- 58 Bull AB. Reminiscences 1998: 10
- 59 Minutes of the 34th South African Medical Congress 1946.
- 60 Correspondence ref MED/18 Administrative offices UCT 28 September 1956.
- 61 Issued by Professor B Bromilow-Downing.
- 62 Correspondence: Afdelings Anaesthetics/Fakulteit Geneeskunde Universiteit van Pretoria. Uitbreiding 444. 7 February 1964.
- 63 Potgieter SV. The Story Behind The 'Eureka' – 'In the SASA Presidential Chain of Office'. *Pipeline/Pyplyn* 1999; December No 35: 3 & 7.
- 64 Burrows EH. The First Anaesthetic in South Africa. 47-52
- 65 *Grahamstown Journal* 1847; June 19 and June 26.
- 66 Atherstone WG. Reminiscences of Medical Practice in South Africa Fifty Years Ago. *South African Medical Journal* 1897; IV April: 243-247.
- 67 Kretzmar N. On the Diamond Fields around Kimberley *South African Medical Journal* 1972; September 30: 1447-1452
- 68 Schmidt HJ. A History of Anaesthesia in South Africa. *South African Medical Journal* 1958; 1 March : 246-247
- 69 Harrison GG. Inaugural Lecture UCT New Series No 74. 1981; 16 September: 7
- 70 *Grahamstown Journal* 1847; 26 June.
- 71 Diedrich Arnoldus and Johannes Nicholas De Beer were two brothers who since 1860 owned the farm Vooruitzicht, on which diamonds were discovered in 1870, that led to the founding of Kimberley. They sold out for £6000. Their names have been commemorated in the De Beers Consolidated Mines Ltd, a company formed by Cecil John Rhodes, Barney Barnato, Alfred Beit and associates to amalgamate virtually the whole diamond mining industry of South Africa. The company was formed on March 13, 1888, with a nominal capital of £100,000.
- 72 Professor JP Duminy of the Pretoria Technical College was appointed Principal and Vice Chancellor of UCT in 1958 until the end of 1967. He was succeeded by Sir Richard Luyt in 1968.
- 73 *Cape Times* 18 February 1966.
- 74 *Cape Times* June 1966
- 75 *Cape Argus* June 1966
- 76 *Cape Times* 23 September 1971
- 77 Muir RM. Whither Anaesthesia. *South African Medical Journal* 1939; 13: 715-720 ^{p15}
- 78 Sidney Cywes graduated MB ChB(UCT) in 1953. He joined the department of surgery as a full-time lecturer in paediatric surgery and in 1968 was promoted to principal specialist. Professor Cywes was the inaugural Charles FM Saint Professor of Paediatric Surgery and retired in 1997. He, aside of paediatric surgery, distinguished himself as a botanist cultivating orchids, Disa lilies and other exotic plants.
Also - *Cape Argus* 1999; 23 February.
- 79 Supplement to the *Cape Argus* 2000; June 26: 6
- 80 Dr Malherbe retired on 30 June 1981, having joined the department in 1957. She was given a farewell at the Red Cross Hospital on 26 June 1981 and presented with an artists impression of herself and a card table. She moved to Hermanus in her retirement.
- 81 Harrison GG. MD(UCT) thesis : case 78 / 2 / 64.
- 82 Cywes S, Louw JH. The Siyepu Conjoined (Siamese) Twins. *South African Medical Journal* 1967; 28 October: 1050-1056.
- 83 The Cape Town Circuit and the Stellenbosch Circuit were locally designed modifications of the Paediatric Ayre's T piece with a Jackson Rees modification. They were all light weight, low resistance and minimal dead space circuits. These were less popular later because of pollution from venting of anaesthetic gases into the theatre atmosphere itself - various scavenging devices were tried but most were unsuitable.
- 84 S Cywes, Millar AJW, Rode H, Brown AR. Conjoined Twins – The Cape Town Experience. *Paediatric Surgery International*. 1997; 12: 234-248 and personal communication from Professor H Rode.

- 85 *Cape Argus* 2000; July 12; July 13: 3; July 14: 1; August 25.
 86 2000: 159
 87 This is an interpolation technique based on the measurement of pH and the use of the Siggaard-Andersen nomogram. Lee & Atkinson. A Synopsis of Anaesthesia 6th Ed. 1968: 779-780
 88 Bull AB. Reminiscences 1998: 13
 89 The Respiratory ICU started in the corner of the male wards of A1 and A5 of the Helen Brown and Arthur Landau firms, under the guidance of Dr Alex Ferguson. Professor Bull was involved right from the beginning (early 1970s), first with the help of a part time consultant Dr Mike Howell. Later a full time registrar and one consultant were seconded from the Department of Anaesthesia. Two of the first anaesthetic registrars were Drs Peter Levin and Solly Benatar.
 90 Don Capp was a technician in the gas sterilizing department. He was lured into the Respiratory Clinic in 1971. Don designed the Capp cart for transporting critically ill patients on ventilators, the first continuous CPAP apparatus with weights for inspiratory boost and many other devices and apparatus. Don retired in 1985.
 91 Anton Fourie succeeded Don Capp in 1985 and as Senior Technologist played a major leadership role in the SA Society of Clinical Technologists and the training of technologists.
 92 Barnard qualified MB ChB(UCT) in 1946 and joined the staff of the University in 1958 as senior cardiothoracic surgeon and director of surgical research; in 1962 he was promoted to *ad hoc* associate professor and in September 1967 was elected a Fellow of the UCT with effect 1st January 1968. On 14 December 1967 the University honoured him by awarding him a DSc honoris causa. Professor Barnard sadly died, alone, in Cyprus, following a severe bout of asthma on 02 September 2001, aged 78 years.
 93 Barnard C, Pepper CB. Christiaan Barnard One Life. 1969: 147
 94 Harrison GG. Thesis Case No. 113/1/59
 95 Hickman, Rosemary. The JS Marais Surgical Laboratory – 21 Years Old. *South African Medical Journal* 1980; 19 April: 677-681.
 96 Velva Schrire was a graduate of the the University, MB ChB (UCT) 1941 with honours, having obtained an MSc in 1938.. He was appointed Head of the cardiac clinic at Groote Schuur Hospital in 1951 and in 1965 was promoted to *ad hoc* associate professor. He was the chief cardiologist in both the initial transplants. He died on 16 February 1972. Obit. GSH Annual Report 1971.
 97 Rosemary Hickman was promoted to associate professor in the department of surgery in 1985. She had been awarded a ChM(UCT) for her thesis ‘Pig liver perfusion’ in 1972. She was later Professor of Surgical Research and retired in 1996.
 98 *South African Medical Journal* 1980; 19 April: 677-681.
 99 Professor Delawir (Del) Kahn, a graduate of the University of Birmingham MB ChB 1974, joined the UCT Department of Surgery in 1976, completed the FCS(SA) in 1984 and the ChM(UCT) later that year. He has been Head of the Organ Transplantation and the Surgical Research Laboratory since 1992. He succeeded Professor Terblanche as Head of Surgery in 2001.
 100 Barnard C. Reflections on the First Heart Transplant. *South African Medical Journal* 1987; 72: xix
 101 Ibid.
 102 The subject of brain death brought into the picture great moral and ethical issues partly since there had been a recorded case of a brain dead person, on a ventilator and artificially fed, surviving for a period of 8 years, 8 months and 19 days.
 103 The B2 operating theatres were renamed the ‘Charles Saint Theatre Suite’ to honour the first Head of Surgery at Groote Schuur Hospital and towards the end of 1995, were reopened, after demodernization, as the Heart Transplant Museum. This was to commemorate the historical event which took place here. The conversion was only possible once the new Groote Schuur Hospital was fully operational (1990) and these theatres were no longer in use.
 104 Cecil Moss who was the second anaesthetist with Dr Ozinsky, with the first heart transplant, lived another life aside of anaesthetics – this was for the game of rugby. Cecil played on the wing for South Africa in all four tests during the much discussed series against the 1949 All Blacks. Of his long association with rugby, he remembers dearly the nine year reign as UCT coach. The Ikeys had won the Grand Challenge, Town Challenge and Ted Scales trophies, and he was also instrumental in honing the skills of players like Peter Whipp, Chris Pope, Doug Claxton, Derek van der Berg and Dugald Macdonald. Dr Moss’ involvement with Western Province rugby began in 1972, when he became a WP selector and since then 12 memorable years have seen him feature

- prominently in the role of WP coach, selector, manager and chairman of the selectors. "Doc Moss has crept into the hearts of all those concerned with Western Province rugby for one very simple reason – he cares." In October 1984 he made a sudden decision to retire as Province manager and selector. He felt that if he continued he would be neglecting some of these duties.
- Smit I. 'How can you do it?' *Cape Times – Times Sport* 1984; 17 October
- 105 Ozinsky J. 'New Hearts for Old'. Lecture at the SASA Silver Jubilee Biennial Congress in Bloemfontein, Saturday 6th July 1968.
- Barnard CN. The operation: a human cardiac transplant: an interim report of a successful operation at Groote Schuur Hospital, Cape Town. *South African Medical Journal* 1967; **41**: 1271-1274.
- 106 Professor Rodney P Hewitson who graduated MB ChB(UCT) in 1946 was instrumental in assisting with the formation of the Cardiothoracic Unit. Although skilled in both cardiac and thoracic surgery, he concentrated solely on general thoracic surgery and was involved in the formation of the combined Bronchus and Oesophageal Clinic. He retired at the end of January 1989. His son, John Hewitson, was later to be the Head of thoracic surgery at the Red Cross Hospital.
- 107 There were many causes for this entity – infection , rejection or ARDS.
- 108 Barnard C, Pepper CB. Christiaan Barnard One Life. 1969: 274-275.
- 109 Dr Philip Blaiberg, 58 years of age, was a retired dentist of Cape Town, born in Uniondale and who grew up in Oudtshoorn.
- 110 Barnard C, Pepper CB. Christiaan Barnard One Life. 1969: 275
- 111 Ibid.
- 112 Experience with Human Heart Transplantation. Proceedings of the Cape Town Symposium 13-16 July 1968.
- 113 Ibid: 285-286.
- 114 Ibid. Message from Dr the Honourable JN Malan.
- 115 *Weekend Argus* – supplement 1992; November 28/29.
- 116 Radhakrishnan S. The Hindu View of Life. 1960 *Svetasvatara Upanishad* iv, 17 : 19. As a matter of interest, Sir Sarvapalli Radhakrishnan , Professor of Eastern Religions and Ethics in the University of Oxford, gave 4 public lectures on 'The Renaissance of Religion' while visiting South Africa at the invitation of the Universities of Cape Town and Witwatersrand. UCT Calendar 1940-41 : 59.
- 117 Reichart BA et al. Heart Transplantation at Groote Schuur Hospital, Cape Town. Twenty years experience. *South African Medical Journal* 1987; **72**, 5 December: 737.
- 118 *UCT Monday Paper* 1990; 3-10 December.
- South African Medical Journal* 1991; **79**, 5 January.
- 119 *Medical Chronicle*. 1968; June.
- 120 *Southern African Jewish Times*. 1968; Friday July 19: 11
- 121 *Die Volksblad*. 1968; 8 July: 3

CHAPTER V

THE AFTERMATH OF THE HEART TRANSPLANT

The international publicity accorded to this unique and momentous stride in medical treatment, was good for Barnard, good for the University, good for Groote Schuur Hospital and for its associated Department of Anaesthesia. The author, whilst travelling in a remote suburb of Lima, in Peru, was amazed that the villagers had heard of the heart transplant, of Chris Barnard, of Cape Town and Groote Schuur Hospital. A similar experience was had in Mexico and Central America while attending the 6th WFSA Congress in 1976.¹

The Western Province was also basking in this glory, that had put it on the international map. The effect of it all was to benefit both the Departments of Cardiac Surgery and Anaesthesia, by the loosening of the purse strings of the treasury of the Cape Provincial Administration. Most of Barnard's requests were acceded to and there was an increase in the supply of both surgical, medical and anaesthetic equipment. Most items were granted if the motivation stated its use for work related to cardiac surgery and organ transplantation. One of the major problems encountered was that of foreign tissue rejection and this required urgent research and development in the field of immunology. One of the spin-offs of the pioneer heart transplant was that the Rand Mining Group put at the disposal of the University of Cape Town a sum of R1 million for establishing a Heart Disease and Organ Transplant Institute, the director of which, Eugene B Dowdle, was made Professor of Clinical Science. He was also father to Sue Dowdle, a member of the Department.

News of the good academic standard of the Department of Anaesthesia and the local broadbased experience available (including paediatric anaesthesia), had travelled abroad and during 1967-70 a number of overseas applicants,² who were anaesthetic registrars in training, many of whom already possessed a FFARCS (Eng), spent time in the Department. They came from the United Kingdom, Germany, the Netherlands and Australia. Some were recruited on Professor Bull's visit to the United Kingdom to the 4th World Federation of the Societies of Anaesthesiologists Congress in London in 1968 and others were

attracted by the publicity of the first heart transplant on December 3, 1967. Among them were Drs H Thomas from the Nuffield Department and Dr ME Jones from Cardiff both who had elected to spend more than a year at UCT.

Dr Leah Atkins ³ had left in 1965 on study leave to do a postgraduate course at the Hammersmith Hospital and was visiting British centres. Dr Piet Vis ⁴ had also left for Amsterdam, Holland to study 'The anaesthetist's role in hyperbaric oxygen therapy'. Among local graduates who joined the Department at this period (late sixties and early seventies) were Drs Julien F Biebuyck ⁵ and Solly Benatar, both of whom passed the FFA examination in record time. (1969 and 1971 respectively) It has been earlier mentioned that Julien Biebuyck was a recipient of a Nuffield Dominions Clinical Assistantship and conducted research described elsewhere. Dr Benatar became primarily interested in Respiratory Intensive Care and was seconded to the Respiratory Unit.

The heavy drain of anaesthetists from full time hospital service, which stressed the Department in the past, slowed down considerably in 1969. The staff position had improved somewhat with the recruitment of staff from overseas. It was now possible to further allow the full implementation of a specialised neurosurgical anaesthetic service. Under the energetic direction of Dr Jan Pretorius, trainees were afforded invaluable insight in this field of anaesthesia. This service of having dedicated senior anaesthetists to certain surgical specialties eg. general surgery, obstetric, cardiovascular and the well established paediatric surgery departments was extended to other departments as well. In addition, anaesthesia was provided for the newly opened Out-patients Block of GSH (1966) for day case surgery. On the academic side, the 2nd MD(UCT) awarded to a member of the Department, was to Dr Ian A Sloan ⁶ for his thesis in 1969 – 'Anaesthesia during operations for congenital heart disease in children with special reference to lactic acidosis', the first having been awarded to Gaisford Harrison in 1966.

The establishment of the Respiratory Care Unit ⁷ in the Department of Medicine in 1968 was a most welcome move and a second anaesthetic registrar, on a full time period of 3 months rotation on

respiratory duties, was sent there as part of the training programme. The Respiratory ICU also benefitted from the publicity surrounding the heart transplant, as more funds became available.

THE RESPIRATORY INTENSIVE CARE UNIT

“The Respiratory Intensive Care Units started in the corner of the male wards of A1 and A5. Dr Ferguson relates that he was ‘welcomed by Drs Helen Brown and Arthur Landau ⁸, the Heads of Medical Firms in those wards. So began for me a long and very happy association with the ‘ground floor’ and, in particular, the Brown Firm. It took nearly two years to get ourselves moved into the four-bedded front stoep wards. By this time the link with the Department of Anaesthesia was well established.. Professor Arthur Bull (Head of the Department of Anaesthesia), supported us from the very beginning, first with part time consultant help (Dr Mike Howell) ^{p106} and then building up to a full registrar and finally consultant secondment.’ Two of the first anaesthetic registrars to spend a six month rotation in the Clinic were Drs Peter Levin ^{p 178. p 189} and Solly Benatar, the latter contributing the first publications from the ICU, on prolonged apnoea after succinylcholine ^{p123}, and fat embolism ^{p136}. Drs Robert Jedeiken ⁹ and Peter Potgieter followed first as registrars and then as consultants. Dr Potgieter remained and is now the longest serving member of the Clinic and Head of the Respiratory and Source Isolation ICU’s. (Note Professor Potgieter took early retirement in 1995 and left for a consultancy in Saudi Arabia) This marriage of respiratory physicians and anaesthetists has proved very happy and one that few other centres have managed to achieve. The first medical registrar (seconded from paediatrics) to assist Dr Ferguson was Dr Max Klein, now head of the Respiratory Clinic and ICU’s at the Red Cross Children’s Hospital. Early consultant physicians were Drs Bob Cowie (1970-1971) and Len Peress (1972-1973). In 1971 3170 patients attended the Respiratory Clinic, 366 as new patients, and 188 passed through the ICU beds.” ¹⁰

By 1972 Velva Schrire judged that the clinic was sufficiently autonomous to be given its independence. In the GSH Annual Report of 1971¹¹ he wrote “the pulmonary service has continued to develop both in consultative capacity and in intensive care. It is now fully established as an effective unit in the Department of Medicine, offering specialised services in pulmonary disease.” In 1973 the Respiratory Clinic moved to the newly built 11’s block (B11). In 1977 the A1 ICU moved to new facilities in A10 .

In 1979 the Clinic benefitted further from a second full time anaesthetic consultant and from those anaesthetic consultants seconded to the Clinic on a six months rotation. In the former post, Drs Neil Cronje¹² (1979-1980) and Bill Chappell¹³ (1981-1982) served well. Thereafter Dr David Linton in 1983 joined the Clinic and ICU. He left for Israel in 1996. Both Peter Potgieter and Eric Bateman¹⁴ were promoted to associate professorship in 1986.

Under the steady leadership of Professor Peter Potgieter, assisted by Dr Dave Linton, the ICU has achieved a reputation both locally and abroad for patient care, competent use of technology and research. Throughout its existence the respiratory ICU has had to contend with a shortage of trained nursing staff and too few beds for a clinical service the size of Groote Schuur Hospital. A useful ICU manual for nurses, and another for doctors has been published. After the departure of Peter Potgieter, the Respiratory ICU was being run by Dr R Raine¹⁵. Dave Linton¹⁶ was succeeded by Dr Tom Ruttman¹⁷ from the Department of Anaesthesia.

THE HAMILTON-MAYNARD MEDAL 1968

To add further to the prestige of the Department, the Federal Council of the Medical Association of South Africa, announced in Pretoria on 1 July 1969, that Dr GG Harrison had been awarded the Hamilton Maynard Medal¹⁸ for the best publications in the *South African Medical Journal* in 1968.

This award was originally instituted by the *Medical Journal of South Africa* in 1927, to honour the original founder of the *Transvaal Medical Journal*, Dr Percy Douglas Hamilton and one of its best known editors Dr George Darell Maynard, who had succeeded Dr Watkins Pitchford after Dr Hamilton's death.

In 1931, the Federal Council of the Medical Association had decided to award the Hamilton Gold Medal, formerly awarded by the *Medical Journal of South Africa*, whose assets and liabilities were taken over by the Association. Two prizes were awarded, namely the Hamilton Gold Medal for the best publication in the journal in each calendar year, consideration was given to originality of ideas and presentation of observations, to clarity of expression and to excellence in style and a money prize entitled

the Maynard Prize, for the best three essays on prescribed themes submitted. The Federal Council had decided to amalgamate these prizes into the Hamilton Maynard Gold Medal. The first award was made in 1932.¹⁹

The presentation was made at the 47th Medical Congress the following week. The publications for this award were: Harrison GG. Anaesthetic contributory death. Part I. Incidence. *South African Medical Journal* 1968; 42: 514^{p112a}

Harrison GG. Anaesthetic contributory death. Part II. Causes. *South African Medical Journal* 1968; 42: 544^{p112a}

Both of these publications were the subject of editorial comment: p 112b, 112c.

The year, 1969 also saw another staff exchange, and this time it was between Dr Mike Howell²⁰ who left to spend a year at the London Hospital and Dr Richard Hancock Ellis²¹ who came to the Department for a year from the London.

PROFESSOR SOLLY R BENATAR

FFA(SA) MRCP(UK)

Professor Solomon Robert Benatar deserves a special mention in the Department's history. Solly joined the Department as a registrar for 2½ years as from the beginning of 1969. Six months of this time was spent in the Respiratory Intensive Care Unit. He passed the FFA(SA) Examination with the College of Medicine of South Africa in 1971 and was awarded the *African Oxygen Gold Medal*²² for the best candidate of the year.

During 1971, he was awarded the prestigious *ICI Overseas Postgraduate Research Scholarship*. We believe him to be the first recipient of this award which ran for about 22 years, during which time about 20 awards were made.

Initially, he planned to spend one year doing research on cardio-pulmonary physiology in the Intensive Care Unit under the guidance of Professor John Nunn at the MRC Anaesthetics Research Centre at Northwick Park Hospital in London. However, only six months were spent there when he transferred to the Brompton Hospital for the remainder of the research fellowship year.

A publication ^{23, p 136} while he was a registrar in the Department of Anaesthesia at UCT, earned him and his co-authors *The Smith and Nephew Award* from the South African Orthopaedic Association. The publication which flowed from his work at Northwick Park Hospital was on Fat Embolism : ²⁴

His work at the Brompton Hospital involved several co-authored publications on pulmonary physiology and function. ²⁵ In London he wrote and passed the examinations for election as MRCP(Lond). Dr Benatar returned to Groote Schuur Hospital in 1974 and was appointed Consultant Physician, working in both respiratory medicine and in the Respiratory Intensive Care Unit. As a result of his involvement here, he maintained strong links with the Department of Anaesthesia. From here onwards, his career has been a meteoric academic progression to Professor (1980) then Head of the Department of Medicine. He relinquished his role as Head of the Respiratory Clinic in 1989 and as Head of the Department of Medicine in 1999, the latter to enable him to concentrate on the Bioethics Unit. Solly is held in high esteem as a respected standard bearer for Human Rights in this country and is a representative of the Committee for Human Rights, Ethics and Professional Practice of the Medical and Dental Professional Board of South Africa.

Ethics activities at UCT were initiated with a Faculty Symposium in 1985, followed by several symposia. In 1990 a multidisciplinary ethics group was formed and in 1992 the University approved the formation of the UCT Bioethics Centre under the directorship of Professor Solly Benatar. In mid September 1994, Professor Benatar undertook a year's Fellowship in the Programme in Ethics and the Professions at the Kennedy School of Government at Harvard University.

His role in the Bioethics Unit and his involvement internationally has been phenomenal. Some of the named lectures given by him are:

Isaac Frank Memorial Lecture. Kennedy Institute of Ethics, Georgetown University, Washington DC.

'Justice and Healthcare: a global perspective'.

Michael T Newhouse Lecture. McMaster University, Hamilton, Ontario.

'Prospects for global health: lessons from tuberculosis'

Ralph Crawshaw Lecture. Foundation for Excellence in Medical Practice, Portland, Oregon.

'Globalisation, health and the medical profession'

Sherman Lecture, Department of Medicine, Tufts University Medical School, Boston.

Bernard Pimstone Memorial Lecture. Annual Research Day, UCT, Department of Medicine.

'Changes, Challenges and Choices in Medicine revisited'

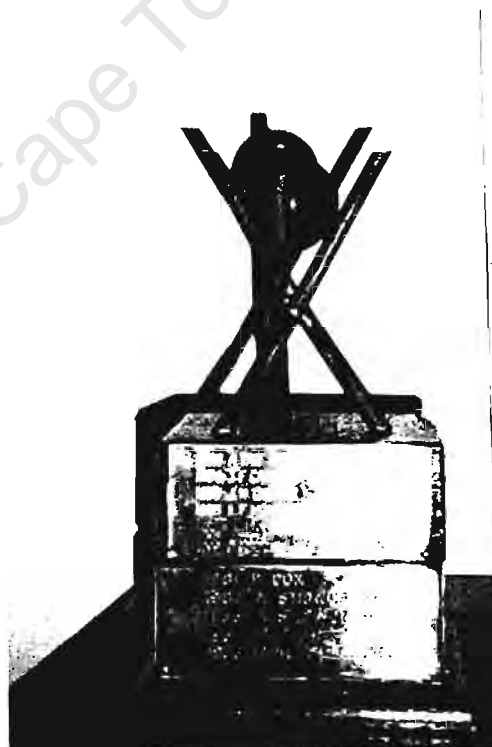
O'Byrne Lecture. Faculties of Law and Medicine, Universities of Alberta and Calgary, Canada.

THE LONDON HOSPITAL SQUASH TROPHY

ANNUAL CAPE TOWN AND LONDON HOSPITAL ANAESTHETISTS SQUASH HANDICAP CHAMPIONSHIP

Professor Roy Simpson of the London Hospital had joined the Department of Anaesthesia at UCT in 1969, for a short stay of two weeks during which time he played squash with members of the staff in particular Neil Cronje and Mike Howell. He must have been impressed for in the following year he presented to the Department the London Hospital Squash Trophy as a token of his appreciation.. It was first awarded in 1971.

1971	GG Harrison
1972	GG Harrison
1973	S de Lange
1974	RD Barnes
1975	HM Coetzer
1976	CJ Cronje
1977	G Irving
1978	D Chapman
1979	A MacDonald
1980	P Mawson
1981	P Cox
1982	A Stidworthy
1983	A Stidworthy
1984	R Dyer
1985	--
1986	A Butt / T Lopez
1987	S Eickhoff
1988	A Butt
1989	H Zambellis
1990	GI Goldmann
1991	M Botha
1992	A Swanepoel
1993	A van Druten
1994	JF Cardoso
1995	JM Thomas
1996	LF Montoya-Palaez
1997	LH Tooke
1998	LH Tooke
1999	PC Gordon
2000	No tournament



In the early 1970's, a most disturbing feature was the continued loss of specialised staff. While the Department was able to attract sufficient trainees as registrars, they were soon to be lost, as soon as they obtained their specialist qualification. The main reason for this was, of course, their perception²⁶ of a major discrepancy between the specialist grade salary structure compared to the earnings available in private practice. But for many, there was the 'political departure' as fear for the 'great tragedy' that apartheid seemed to make inevitable. The environment throughout the country was also changing and many private hospitals were being constructed, many of them better equipped than those in the public sector. 1971 ended up with seven specialist posts being vacant. The relief offered by the foreign medical graduates, although valuable from the teaching and international contact point of view, did not altogether solve the staff position.

SASA CONGRESS IN CAPE TOWN 1971²⁷ 22nd to 26th September

This was the first South African Society of Anaesthetists Congress to be held apart from that of the Medical Association of South Africa. Dr Jan Pretorius, while holding the office of Chairman of the SA Society of Anaesthetists, Cape Western Branch, and a member of the Department of Anaesthesia at UCT, organized virtually singlehanded, what turned out to be the best attended congress, and one which showed a surplus of funds. (130 delegates - more than half of the total anaesthetic specialist population of South Africa attended). The Congress was prepared like a military operation.

At the AGM on 26 September 1971, Dr Pretorius reported the unforeseen surplus of R1751.00²⁸, a large sum indeed in those days! Following a proposal by Dr A Cilliers seconded by Dr D Jowell it was accepted "That SASA sets up a Research Fund and that the surplus from the Congress be used to start this fund. Details of the Research Fund will be left to the incoming Executive."

The venue was the Pathology Lecture Theatre in Medical School and Professor Bull delivered the opening address. Symposia were held on diverse topics such as: Medico-legal Responsibility, Biomedical Engineering and Anaesthesia, Anaesthesia for Major Abdominal Surgery, Obstetrical & Neurosurgical Anaesthesia, Paediatric Anaesthesia, Anaesthesia and the Endocrines, Fluid Therapy, Recent

Advances and Case Presentations. Held over 5 days, the entertainment included a cocktail party, ballet at the Nico Malan Opera House ²⁹, the Turf Club, golf and sailing as well as a formal Congress Banquet at the Mount Nelson Hotel, where Dr Dennis Glauber ³⁰ officiated as Master of Ceremonies.

At the prime of his professional life, while returning from his annual vacation, Dr Jan Pretorius was killed instantly in a motor vehicle accident on du Toit's Kloof on 30 July 1972. His loss a bitter blow to the specialty of Anaesthesia, in South Africa generally.

DR JAN ALBERTUS PRETORIUS

Carpe diem quam ³¹ *minimum credulo postero*. Make good use of the present and trust little to the future. This was the title of the Anaesthesia Department bulletin Jan Pretorius started while a member of the staff.

Jan Pretorius was born on 26 April 1921 in Dundee, Natal. He matriculated at the Vryheid High School in Natal in 1937. In 1940 he was awarded the degree of Baccalaureus Artium by the University of Stellenbosch and in 1941, obtained the Graduate University Teacher's Diploma at Pietermaritzburg College. Armed with these credentials, he commenced teaching history, English and physical training at the Escourt High School in Natal in 1942. During this period he attended a physical and recreational training Cadet Officer's Course at Voortrekkerhoogte.

Jan belonged to that rare breed of people, a restless lot who were never satisfied with their level of achievement. After a short spell in teaching he opted for a career in medicine and graduated MB ChB (UCT) in 1950. Internship was completed at the Addington Hospital in Durban and for a short time he was a school doctor. After a brief spell in general practice at Greytown, he spent a few months at Eshowe Hospital and King Edward in Durban. Thereafter, deciding that anaesthesia was his *forte*, he joined the Department at UCT as a registrar and graduated MMed (Anaes) in 1957. He was subsequently appointed as a full time consultant in Anaesthesia and took a keen interest in research and teaching ^{p 65, p 80}.

With the collaboration of Professor Bull he made a scholarly translation of that well known "*Anaesthetics for Students*" by G Ostlere and R Bryce-Smith into Afrikaans called "*Narkosetegniek vir*



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Dr Jan A Pretorius

Mediese Studente". – Juta ³² The pedantic quibbling criticism of certain technical terms which emanated from the Pretoria Medical Faculty, in a book review, offended him deeply. Jan vowed never to write in Afrikaans again and wrote professionally, only in English, thereafter. "Dit skyn asof die vertalers besluit het om sover moontlik 'n Afrikaanseekwivalent vir 'n bekende Engelse of internasionale woord te gebruik. Met die meeste woorde was hulle suksesvol, maar sommige van die Afrikaanse woorde klink selfs vir die Afrikaanse ook vreemd. Woorde soos gesigslagaar (facial artery); voetrugtoonslagaar (dorsalis pedis); vlakgeleëslaapslagaar (superficial temporal artery)..... esv, kon liever in hulle oorspronklike internasionale vorm gebly het." Having said this, the reviewer Professor OVS Kok recommended the book highly not only for medical and dental students but also for general practitioners and specialists. He also wished the translators well for a splendid effort and looked forward to further translations. ³³

As mentioned earlier, Jan spent a year, in 1961, at the Royal Infirmary, Cardiff and Welsh National School of Medicine under Professor WW Mushin. After 4 years in private practice in Durban, he returned to GSH and being interested in clinical anaesthesia, further developed the neurosurgical sub unit in anaesthesia at this Department. The rest of his energies he directed to golf, horses and dinghy sailing. He also joined the Freemasons and at the time of his death, was serving as Master of the Lodge.

At the AGM in September 1972, the President Professor Hilde Ginsberg ³⁴ announced that following the tragic death of Dr Pretorius, the Council of SASA had decided to rename the 'SASA Research Fund' to 'The Jan Pretorius Research Fund'. ³⁵

The author wishes to place on record his gratitude to the Convenor and Committee of this Fund for the grant of R5400-00 made available to him for the researching and recording of this history. While we're on the subject of congress, mention must also be made that through the willing co-operation of all departments in the hospital requiring anaesthetic services, only emergency surgery was undertaken during this period of the congress, allowing most of the anaesthetic staff to attend the symposia.

In the following year 1972, Professor Bull applied for and was granted sabbatical leave during which he spent three months as Guest Professor at the St. Radboud Ziekenhuis at Nijmegen, Holland at the invitation of Professor Jan Crul ³⁶. The other three months were for renewing contacts and visiting anaesthetic centres in the United Kingdom, lecturing in Germany and Israel, and attending the American Anesthesiology Congress in Boston, USA. During his absence the Department was run by Gaisford Harrison, who in this year, was also promoted *ad hoc* associate Professor in the Department of Anaesthesia, UCT.

October 30, 1972 marked the retirement on pension of Dr Leah Atkins ³⁷ – the doyen of our Department. Leah joined the Department as a registrar under Dr Tom Fuller in 1947, and was one of the first along with Drs PHB Maytom ³⁸ and LS Meyerowitz ³⁹ to obtain the MMed (Anaes) in December 1955. Since then she was a consultant on the staff until 1972, having served a total of twenty five years. Other very senior staff members that were also lost to the Department in early 1973 were Dr Piet Vis ⁴⁰ and Dr Stuart Kaye ¹⁴⁹. Piet returned to a senior post in the Netherlands after 13 years of service in the Department and Stuart was appointed as senior anaesthetist in the Cardiac and Thoracic service at Greenlane Hospital, Auckland, New Zealand.

THE TRAUMA UNIT

Since the opening of Groote Schuur Hospital, it has run a casualty service. In 1960 an organisation for the handling of mass casualties was brought into operation. The Unit was organised within the division of surgery and 'multiple injuries' came under its care. This organisation would then find beds for these patients and operate on them after resuscitation in casualty. 70 such cases were seen in 1960 particularly those that were admitted after the Langa Riots ⁴¹ and the Ndabeni ⁴² train accident. The Department of Anaesthesia had provided anaesthesia for 1870 patients in Casualty during 1961. By 1962 the 'Multiple Injury Unit' had been operational in its 3rd year. The Unit then had its name changed to the 'Severely Injured Unit'. Improvements were made and a Lawson Tait Accident bed as well as an electrical External Defibrillator and Pacemaker had been acquired. 2796 anaesthetics were administered during this year. In

1963 the Severely Injured Unit handled 20 such patients per month with the surgeons having a 'on call' roster. Both part time and full time members of the surgical department participated in this unit.

By 1965 Dr Theodore (Toddy) Schrire⁴³ took the Unit under his wing. Severely injured patients were now being treated at the rate of 10 per week. As a result of this, a surgical registrar was appointed on a 24 hour 'on call' roster for the Unit. Dr Schrire was instrumental, along with others, in initiating the process of modernising the operating theatre. In February 1970 the Unit was moved into temporary new and smaller premises. Toddy Schrire in the meanwhile was involved in the editing of the book – Surgical Emergencies – Diagnosis & Management. It was published in 1972 and covered the entire field including the organizing of casualty departments. Arthur Bull contributed a chapter on 'The Anaesthetist in Casualty'. In a book review in the SAMJ it was mentioned that this was probably the first book of its kind, in the English language, which so comprehensively covered this subject.

The Casualty section under construction, was to be divided into two parts namely, a Trauma Section which was to be housed in the rebuilt wards of A2, A3 and A4 while the atraumatic section was to remain as G1. In 1972 Dr L Sanders took over the direction of the Unit until 1973 when he was succeeded by Dr RDH Baigrie. Casualty under Dr Sanders had registered 44,863 patients, of these 9955 were involved in accidents. 3399 procedures were carried out in Casualty, of which 1076 were under general anaesthesia. This figure was out of a total of 34,438 general anaesthetics administered throughout the hospital. The Unit underwent another name change and was now known as the 'Accident Unit'. The Department of Anaesthesia had since 1970 been providing an anaesthetic registrar on a 24 hour basis. The number of anaesthetics administered in the Unit had increased from 950 in 1973 to 2976 in 1977 and many more in later years. Dr Baigrie retired in 1978 and he was succeeded by Dr Johan van der Spuy.

The years long planning of the Trauma or Accident Unit finally came to fruition on 1 February 1973 when Dr TL Sarkin brought it into active operation. But by July 1973, he left to become Professor of Orthopaedic Surgery at Natal University. The Department of Anaesthesia would provide a dedicated anaesthetist for this unit twenty four hours per day. The use of these two anaesthetic registrars, on day and

night shifts of 12 hours each, who in the meanwhile supported the depleted staff complement elsewhere, now added to the burden of the acute shortage in the Department.

As far as the theatres were concerned, the planners had no doubt tried to satisfy the requirements of the prevailing 'apartheid' government of the time, by providing two separate but not quite equal theatres, the original design being far too small. The result was a disaster in terms of theatre planning and those who had worked there suffered for space, particularly when involved with major trauma and working with five or six surgical specialists in different fields, on different parts of the body. Weekends were like a miniature Vietnam, with gangsters of the Cape Flats and surrounds providing an endless stream of hair raising experience.

By 1980, under the Direction of Dr Johan van der Spuy, the Unit managed both local and referred trauma patients and was the only centre in the province teaching comprehensive trauma to undergraduates and postgraduates. Much experience was to be gained in both anaesthesia and surgery and this particularly over the 48 hour period from midnight Friday to midnight Sunday, often stressing the Unit beyond its capacity and facilities. Penetrating injuries of the chest, 'stab hearts' and cardiac tamponades were a matter of course and left the anaesthetists unfazed. Johan recommended to the authorities that relatively simple trauma should be handled at local and regional level. This did in fact, take place in the mid nineties. In the mid eighties, it was observed that the number of Paediatric Trauma patients was also increasing. In 1985, the Unit instituted a progressive drainage of such patients to the newly opened Paediatric Trauma Unit at the Red Cross Hospital. This experience for trainee anaesthesiologists added to that already being gained in paediatric anaesthesia and intensive care at that hospital.

In 1988, the running of the Unit was taken over by Dr John Knottenbelt and Dr van der Spuy attended on a sessional basis. There was a heavy burden on the Unit as a result of a major increase in motor vehicle accidents and the fact that there were only two tertiary trauma referral centres in the Western Cape, the other being at Tygerberg Hospital. The move to the New Groote Schuur Hospital was eagerly being anticipated as equipment was rapidly deteriorating. This move materialised in October 1989, although it

was still plagued by a nursing and equipment shortage, such as trauma resuscitation trolleys, theatre tables and decent radiological facilities. (A new CT Scanner was installed by public subscription in 2001)

The early 90s saw in South Africa, the very rapid mushrooming of a totally new mode of transport, the black taxi industry. This, virtually overnight, became a 3 billion Rand enterprise. Unfortunately there were many unscrupulous operators, unlicensed drivers, unroadworthy vehicles and unbelievable overloading with passengers. With some, there was a total disregard for the law, excessive speeding to cash in on extra rounds, and intergroup rivalry – all leading to a major increase in vehicular trauma (many were inebriated pedestrians). Gunshot violence was a common occurrence. The taxis, nicknamed Zola Budds, however, fulfilled a vital need for the citizens, for the government had failed to provide a dependable, reliable transport system. As the nineties progressed, violence, MVA's, domestic squabbles, in most cases alcohol related, were the leading causes of morbidity and mortality.

Added to this spate of major motor vehicle accidents, the liberal use of pistols, revolvers, R-5 rifles and Kalashnikov AK 47s, gunshot wounds became a major presentation. "This country had a traffic injury rate ten times worse than the United States while deaths due to interpersonal violence was six times higher than in the USA" ⁴⁴ In the late 1990's the Accident Unit of the new GSH had to be sealed off for the security and safety of the staff, to prevent the entry of gangs who wished to finish the job they had started.

Professor J Knottenbelt left at the end of 1994 to take up a post at Northwick Park Hospital, outside London, UK. His post was now occupied by Dr Peter Bautz. The laparotomy rate over 1996/1997 was a 2:1 gunshot wound: stab ratio, but in 1997 this ratio was noted to be > 7:1. The total of high velocity gunshot wounds was higher than ever before in the four months of 1997 than over the last few years. At the end of 1998 Dr Andy J Nichol took over as Director of the Unit, while Dr Bautz left for overseas. During the year 2000, it was noted that the Western Cape had the highest homicide rate per capita in the world and the 3rd highest mortality from road traffic deaths globally. 21,683 murders were committed in South Africa in 2000, of which 3396 were committed in the Western Province alone ⁴⁵.

With this vast experience gained in trauma management, anaesthesiologists in the Department at UCT became very adept in this field. Apart from the Respiratory and Cardiac Intensive Care Units, the author and colleagues probably gained the most experience in this area. The ward rounds with the Director of the Trauma Unit, Dr Johan van der Spuy were of immense benefit to the trainee anaesthetists. Johan was a very warm hearted, considerate and dedicated surgeon and teacher. He subsequently moved on to be appointed Director, National Trauma Research Programme, Medical Research Council, Tygerberg, Cape.

THE ERNEST OPPENHEIMER AWARD⁴⁶

Professor GG Harrison received one more accolade by being awarded the Ernest Oppenheimer Foundation Travel Grant for Advanced Overseas Study in 1973. He made use of this by spending the greater part of his three months in London at the Medical Research Council's Clinical Research Centre in Harrow, where he was able to gain valuable experience in methodology to further his research interests. He was also able to visit the USA to participate in a Symposium on Molecular Mechanisms in Anaesthesia

The staff situation from 1974 onwards had improved considerably and for the next few years there was stability and expansion in the Department. There was now a permanent specialist anaesthetist, Dr Peter Potgieter, appointed to the Respiratory Unit as well as one specialist and one registrar on a three monthly rotation. Several new members joined from overseas on contract. These were Drs H O'Neill, Mary Milne⁴⁷ and S Wyse. Dr Redelinghuys, a South African had returned from experience in Sweden and Dr Elke Beyer came from West Germany. Jack Cowlin⁴⁸ returned after several years in private practice in East London. A particularly welcome member was Dr Julien Biebuyck, who had returned after 5 years, having pursued a distinguished career of 3 years in Oxford, UK and 2 years in the USA where he was assistant Professor of Anaesthetics at the Harvard Medical School. He was also armed with a DPhil. degree from Oxford University. Julien was appointed Principal Specialist at UCT and provided a valuable stimulus to departmental research.

In these years the Department was honoured by visits from several distinguished overseas anaesthetists – these have been listed in the appendices. They brought with them a wealth of experience and at the same time gave credibility to the Department.

Pari Passu with the healthy state of stability in the Department, was the commencement of planning of the new Groote Schuur Hospital. In this Professor Bull and Dr Biebuyck put their heads together and provided input for the future departmental accommodation. It was hoped that this would come to fruition in 2-3 years but this was not to be. Ironically, extensive building operations commenced in the existing Groote Schuur Hospital, causing tremendous upheaval and frustration. For a period of over three months staff suffered flood, fire and electrical power failures, and eventually the Department was moved to temporary accommodation elsewhere. Added to this was the closure of the B2 Complex ⁴⁹ (the main surgical theatres) , and operative surgery was displaced to other theatres.

The light at the end of the tunnel was that the new accommodation in the HD & OT Building was now ready and occupation was taken of the new laboratory and offices. This now, in 1975, became the research and academic headquarters.

NEW HEADQUARTERS FOR THE DEPARTMENT OF ANAESTHESIA

Partly, as a result of the research capabilities of Drs Biebuyck and Harrison, the Department was finally granted laboratory space in the HD&OT Building (Heart Disease and Organ Transplant) in 1975, constructed on the site of the old animal house in Medical campus, opposite the JS Marais Research Laboratory. As a matter of record, the HD&OT Building underwent several name changes viz. The Clinical Science Building, then The Anglo-DeBeers Christiaan Barnard Building and subsequently The UCT Heart Centre ⁵⁰. The office space on the 5th floor became the headquarters of the Department of Anaesthesia and housed the Professor's office as well as the University secretarial staff.

Prior to this, the Department and laboratory had moved on a few occasions. One of the first was a small office and laboratory, next to the Dean's office, on the 3rd floor of the Medical School Pathology building, near the medical library. From here, during the period about 1966 to 1974, the Department offices and open laboratory with a small darkroom, were situated on the basement floor of the Third Year

Block. There was a small office for Professor Bull and a smaller one for Pat Strong, the part time secretary. This laboratory was where Harrison did his early work on pigs and Dantrolene. With the move to the HD&OT building in 1975, this section went to the Department of Forensic Medicine. There was a further move in later years.

The properly staffed Department now ensured that senior anaesthetists could be placed in charge of surgical specialties of their special interest: Dr Ozinsky, now famed for his part in the first heart transplant took care of cardiac anaesthesia; Drs Tom Voss and Petro Malherbe ran an excellent service at the Red Cross Children's Hospital and in fact, for Dr Voss' contribution to paediatric anaesthesia, he was promoted *ad hominem* associate Professor of Anaesthesia in 1975. Neurosurgical anaesthesia was run by the very able teacher, Dr Piet Vis who had joined from Holland. When Piet returned home, Dr Zellick Misnuner succeeded him and remained there till past 2000. Dr Maria Massing who had spent six months in Leiden, Holland returned and took care of ENT anaesthesia till the day of her official retirement in 1984, although she continued in a part time capacity for another 5 years. As a matter of interest, she and Dr I Williams were on an exchange, she for Leiden⁵¹ and Williams for London, with Drs John Barker of St Barts⁵² and Gary Symons of St Mary's⁵³.

By 1975 the Department had expanded to 26 specialist anaesthetists full time and 11 part time, doing an average of one session per week. There were 30 registrars in training so one of the objectives set out had been achieved and each registrar in training had specialist cover. This also allowed sufficient flexibility to make it possible for Gaisford Harrison and Julien Biebuyck to spend more time on fundamental research backed by the new laboratory accommodation and research funding provided by the Anglo American and De Beers donation as well as that of Joseph Stone.

As with all Heads of Departments in the system at UCT, Professor Bull, at this period of development, was inundated with a plethora of committees – University Senate, Board of Faculty, Hospital Central Advisory Committee and a spell of 2 years as Senate Representative on the University Council. All of these bodies met at least monthly and some weekly.

The years 1976-1979 were notable for a number of overseas visitors to the Department, among them Dr A Spence, then editor of the *British Journal of Anaesthesia*; Dr David White from Northwick Park and HOD of the National Health Service Anaesthetic Department, UK and Dr Leo Strunin also from the UK. Professor Harrison was invited to visit Australia as Guest Lecturer to the Australian Society of Anaesthetists in 1977. 1978 saw additional well known visitors from abroad – Professor Cedric Prys-Roberts from Oxford, on his first visit; Professor John Bonica from Seattle USA; Professor Jan Crul from the Netherlands and Professor J Gibbs from New Zealand.

THE SOWETO RIOTS OF 16 JUNE 1976

No history recorded in South Africa would be complete without a mention of the cataclysmic events of the fateful years commencing 1976. These events ultimately led to the formation of a new government in South Africa, under the ruling majority African National Congress Party and Robben Island prisoner, President Nelson Mandela in 1994.

As a result of the Black Consciousness Movement which stimulated a political awareness amongst black Africans, the students of Soweto as the Soweto Student's Representative Council organised demonstrations, work stoppages, rent strikes and attacks on shebeens. One of the events which sparked off the protest was an instruction by the ruling government to use Afrikaans⁵⁴ as a medium of instruction in certain subjects at the black schools rather than the 'international' English language. Afrikaans was perceived by the blacks as the language of the oppressor and the ruling Nationalist Party and one which was basically alien to the African peoples. The apartheid security forces reacted by gunning down 600 people, mainly youths, in the largest single uprising in the country's history. The violence which followed ended only a month after the sensational death of Black Consciousness Movement leader Steve Biko⁵⁵, in police custody in September 1977, when the organization was banned by the Minister of Justice Jimmy ('his death leaves me cold') Kruger.

Why is this mentioned in this book ? For the simple reason that these events stirred the conscience of the International Community, particularly when some members of this community were

SOUTH AFRICANS ABROAD
THE BRAIN DRAIN
ANAESTHESIOLOGISTS ONLY

ABU DHABI	1
AUSTRALIA	37
CANADA	26
FINLAND	2
HONG KONG	1
ISRAEL	7
NETHERLANDS	3
NEW ZEALAND	32
SAUDI ARABIA	6
TASMANIA	1
UNITED ARAB EMIRATES	4
UNITED KINGDOM	35
UNITED STATES OF AMERICA	51

	205

The list is incomplete and was compiled in September 1998
by Editor N Parbhoo for PIPELINE December 1998 No 31.

In this year there were 802 anaesthesiologists on the SAM&DC register of which 135 were of the female gender. (16.8%). It may be presumed that most of those abroad would retain their South African registration.

Fig 3

reaping the benefits of the economic largesse as a result of this oppression. South Africa was ostracized and regarded as a *pariah* nation. With this came both a trade and an academic boycott in the years to come. International pressure and isolation in the form of 'sanctions' were mounting. With this came the exodus of highly trained anaesthesiologists (amongst all the other academics) for not only greener but safer pastures for their families, to Canada, the United Kingdom, New Zealand, Australia and elsewhere. (see chart on the Brain Drain – South Africans Abroad) Applications from overseas anaesthesiologists to work in our Department for periods from six months to one year also gradually lessened. Because of the real fear of conflagration and violence, distinguished academics were reluctant to participate in South African Congresses.

During 1979 it became clear to Professor Bull that the Department could benefit from new direction. His chief interest had always been the clinical in-theatre side of anaesthesia and other duties were removing him further and further from it. Research was now well instituted by Gaisford Harrison and the clinical service was running smoothly. He therefore decided in 1980 to take sabbatical leave followed by retirement at the age of 60 years. We need to say a few words about Arthur Bull.

PROFESSOR ARTHUR BARCLAY BULL

Born on 18 March 1920 in Burma, Arthur was the second son of three children of Dr AB Bull senior (Pop) a much loved medical practitioner of Simonstown. His sister Margaret Marion (Maggie) was a well known cytologist in Cape Town who passed away at the age of 67, in 1995 and his brother an equally known British physician Sir Graham Bull ⁵⁶.

Arthur was educated at the Diocesan College ⁵⁷ and the UCT. After a six months house job at the New Somerset Hospital, he joined the SA Medical Corps during the Second World War. After demobilization he joined the family practice. In 1948 he started at Groote Schuur Hospital as a registrar in the Department of Anaesthesia.

Much of his academic career has already been noted. Apart from this Arthur was a very active member of the South African Society of Anaesthetists having served two terms as SASA National President in 1964-65 and 1985-86. His interest in the affairs of SASA spanned many decades both in the Cape Western Branch and in the national body. A noted contribution was 'The Guidelines for Practice' which were published with Arthur Bull as convenor of the Guidelines sub-committee. This document has been revised and added to, encompassing intensive care and is today the recognised standard throughout the country. He was Founder Member of the Association of University Anaesthetists⁵⁸ as well as associate Founder of the College of Medicine of South Africa, having served this body for 12 years as a member of Council and Treasurer from 1974-1979. During the period (1969-1977) he was also Chairman of the Faculty Committee, Faculty of Anaesthetists, College of Medicine of SA. At the UCT, Arthur was equally involved, having been President of the Medical Students Council during 1967-68, Senate Representative on University of Cape Town Council 1970-72, President of the University of Cape Town Staff Association 1970-72 and Member of the Teaching Hospitals Central Advisory Committee, Joint Medical Staff, UCT & CPA.

In 1977 Professor Bull was elected Honorary Fellow of the Faculty of Anaesthetists of the Royal Australasian College of Surgeons. In November 1982, a Bronze Medal was awarded him by the Medical Association of South Africa in recognition of meritorious service rendered to the SA Society of Anaesthetists.

On 21 November 1984, the Past Chairman of SASA, Cape Western Branch, Dr Yvic Bosman unveiled a bronze bust of Professor Bull at its academic meeting. The bust had been sculpted by Mr Oscar Groenewald and the cost of R1100 had been made up by contributions from Professor Bull's grateful and admiring students and members of SASA. As the bust was the property of Professor Bull, he after acceptance, promptly donated it to Nagin Parbhoo for display in the Anaesthetic Museum of the Department in the new GSH.

On his retirement Arthur had planned to devote himself to his dear wife Esme, as well as to his second love, silversmithing. Arthur was in fact a registered silversmith with the 'Bull' trademark. This skill brought with it a growing expertise in the art of valuing silverware. It is with great sadness to record that Professor Bull died on 03 March 2001, aged 80 years after a short illness, which he bore with great dignity.

59, 60, 61.

The year 1980, a year of interregnum for the Department of Anaesthesia, thus saw the end of an era. Professor Bull who originally joined the staff of the hospital in 1947 and was Head of the Department for nineteen years, fifteen of which he served as first Professor of Anaesthetics at UCT, had retired. For most of the year he was away on research and study leave and the Department was headed in his absence by associate Professor Harrison, who was elected to succeed him as Professor and Head of the Department in 1981.

The stable staffing position which had emerged in 1979, continued the following year. Although registrar posts continued to be oversubscribed and consultant posts were readily filled when vacant, demands for new services could not be acceded to. One notable exception was the long awaited creation of a specialist post specifically for the service provided for the Department of Obstetrics. The appointment of Dr WAR Erskine to this post improved both the efficiency of this essential service as well as the teaching for the anaesthetic registrars. A further benefit was the rebirth in 1978, in conjunction with the Department of Neurosurgery, of the Pain Clinic.

THE PAIN RELIEF CLINIC

In 1976, it was proposed that a multidisciplinary meeting be held to discuss the development of a Pain Relief organisation at Groote Schuur Hospital. At this meeting attended by Professor JC DeVilliers - the Head of Neurosurgery, Dr Benny Bubb - a neurosurgeon, Professor Bull - Head of Anaesthesia and Dr Lynn S Gillis - Head of the Department of Psychiatry, it was agreed that the Department of Anaesthesia would send one of their members to participate. The first anaesthetist to commence work here was Dr Jack Cowlin along with neurosurgeon Benny Bubb. A short while later Dr Bubb left for overseas and Jack

Cowlin left the Department. Their places were filled by Dr Roger Melvill of neurosurgery and Dr Richard Erskine from anaesthetics in 1978. The clinic and procedures were conducted in the J4 Neurosurgery complex – an area which left much to be desired.

They were assisted by nursing staff, radiologists and physiotherapists on a totally *ad hoc* basis and as a result there were many hiccups in the smooth running of the clinic. All the patients seen in the early days, were on an out patient basis and some ward references were attended to.

The objective of the pain clinic was to diagnose with accuracy the organic component of the pain which was assessed before embarking on definitive treatment, as contributory factors are anxiety and depression with economic and familial factors which are superimposed. Special investigations like radiography and local anaesthetic blocking techniques were to decide on the ultimate procedure or drug regime

In 1981, Erskine and Melville reported on their experience ^{p 203, 62} in treating 50 patients during the year August 1978 – August 1979. 'In keeping with the pattern overseas, this clinic was started with cancer pain treatment in mind, but later it attracted patients with chronic pain problems of widely differing natures:

DIAGNOSIS.

- 41 had cancer – direct infiltration of tumour growth onto nerves in most instances.
- 5 had peripheral nerve entrapment as a result of surgical procedures.
- 3 had discogenic disease.
- 1 had post herpetic neuralgia.

The clinic functions to allay symptoms and not to treat the underlying pathological condition. Patients in pain due to malignant disease are likely to undergo some type of neurolytic procedure, either chemical or surgical while benign pain is usually treated with some type of drug regimen or local anaesthetic block.

Intrathecal phenol was reserved for patients with cancer and a limited life expectancy.

Cranial nerve block for patients with late stage oropharyngeal carcinoma. Initially local anaesthetic was used but later phenol. Even later, Radiofrequency Ablation of the trigeminal nerve was resorted to.

Percutaneous cordotomy and myelotomy.

Epidural steroids – using a mixture of bupivacaine 75mg and methyl prednisolone (Depomedrol) 80mg injected into the peridural space.
Narcotic analgesics – regular 6 hourly medication.
Antidepressants and phenothiazines.’

The clinic, in 1981 was run by Dr Roland W Eastman, a neurologist, together with a member of the anaesthetic staff Dr Graham Archer who had taken over from Dr WAR Erskine following his resignation. A total of 200 new patients were seen and the recent organisation of percutaneous or transcutaneous electrical stimulation (TENS) had added to their therapeutic armamentarium.

The unit was now staffed by 1 specialist and 1 registrar. Three clinics were held per week:

Tuesday	patients with pain problems related to malignant disease (1983	119 attendances)
Wednesday	patients with pain problems not related to malignant disease “	381 “
Thursday	diagnostic and therapeutic nerve blocks in J4 operating theatre “	91 “

An additional facet to the treatment, was that from 1984, physicians were referring their patients for coeliac block with alcohol, for their patients suffering from chronic pancreatitis.

In 1985 Dr Graham Archer, the ‘Director’ of the Pain Relief Clinic, was given a 3 month visiting fellowship to the Walton Hospital in Liverpool, – one of the foremost pain relief centres in the UK. In his absence Professor Harrison managed the clinic. By 1986, 147 therapeutic procedures had been performed and the number of Out Patient visits 307. A valuable addition was the welcome attendance of a physiotherapist for one session a week. A new field was entered with the treatment of spasticity in patients with disseminated sclerosis and radiation myelopathy, by intrathecal phenol to perform an anterior rhizotomy.

A noteworthy change in 1987 was the interdepartmental intercourse when Dr David Trappier of the Department of Psychiatry was approached for assistance. As a result Dr Ann Jordan, a Clinical Psychologist in the Department of Psychiatry with a special interest in pain problems, joined the clinic. Unfortunately her attendance at the clinic was terminated as the premises were not conducive to conducting personal interviews. Those patients requiring her services were now referred to her in her own department. A further development was the link with St Luke’s Hospice ⁶³ and where necessary, patients with pain problems were seen on the Hospice premises. The Physiotherapy Department continued their active

participation and the use of laser therapy and acupuncture, especially in osteo-arthritis of the knee, were significantly successful.

1989 was the year of the great 'decant' from the old Groote Schuur to the New Groote Schuur Hospital. Along with this came the availability of new radiological equipment – a tremendous advance over the antiquated apparatus used previously. Improved definition and accurate placement of blocks, particularly in the obese, allowed for better success. These referrals were mainly from the Radiotherapy Department. But along with this improvement, came the inevitable financial constraint and the resultant staff shortage. Both the physiotherapist and the rotating anaesthetic registrar were cut back to a large extent.

Frustrations continued in the year ahead. However, the interest of the deputy Dean, Dr Roderick Colborn, in the Pain Relief Clinic, resulted in the presentation of a symposium directed at the general practitioner on 'The Rational Management of Chronic Pain' at the UCT Medical School on Saturday, 28 April 1990. Dr Archer presented a paper on 'Neuralgic Pain'.

In March 1992, Dr Gordon Irving took over the Pain Relief Clinic from Dr Graham Archer. The service had now also expanded to include a rehabilitation programme for chronic pain patients. This was run at the William Slater Hospital ⁶⁴ and included lectures, exercises, stress management, relocation techniques and detoxification where indicated. Sadly, waiting lists which were already 3-4 months were growing longer and there seemed to be no respite from staff shortage. In 1993 Gordon Irving himself left for overseas. The clinic was now run by two anaesthesiologists Drs John Barwise and Doug Holden assisted by two psychiatrists, Drs Sean Baumann and Jeremy Royds, the neurosurgeon, physiotherapists, usually Mariette Pitlo and a nursing sister, one of whom was Sr Eve Thomas.

The areas for consultation in the New Groote Schuur Hospital were:

1. C8 Radiology Procedures Clinic
2. OE 47 Chronic Pain Clinic
3. LE 32 Cancer Pain
4. Various ward in-patient referrals.

The need for a centralised area from which to run the clinic were recognised and efforts were being made to have a multi-disciplinary unit housed in C27. In the meanwhile, a Patient Controlled Analgesia (PCA) programme for postoperative pain was started by Dr Luc Evenepoel and proved to be very successful.

Ultimately, towards the end of 1995, a new post of Director - Pain Management Unit, was created and its first incumbent was Dr Paul Lloyd, a Maxillo-Facial Specialist. Consultations were now moved to OE21 and OE22, J2 Psychiatric Out Patients and OE3. Pain Management classes were held on a Friday.

The multi-disciplinary unit was now planned for E26. This dream became a reality in 1996 with the relocation of the clinic to E26. Sadly, the new Director Dr Lloyd, died tragically in May 1996. His loss was felt and caused a curtailment in the management of the clinic. Professor John F Viljoen who was the first occupant of the newly created second Chair of Anaesthesiology (1993) now stepped in to take over the management of this unit. Dr Mark Bloch and Dr Gregory Torr, in the meantime, ably continued the Acute Pain Service. 286 patients were placed on PCA pumps during the year. In general, the work load had increased tremendously, waiting list were six months or more. 928 patients were consulted in the Pain Clinic and 239 procedures were performed.

In 1997, a former member of the Department, Dr Barry Bass returned from the USA and took up the appointment of Director – Pain Management Unit. Barry had successfully run a Pain Management Unit in Corpus Christi, Texas for some 20 years and his expertise was most valuable based on his vast experience. He, in addition to current services, instituted a class where patients were able to interact with each other and taught coping skills. The services of social worker Mrs Lindy Smith as well as the skill of psychiatrist Sean Baumann, and various nerve blocks were also helpful in reducing the medication dependency of patients.

In 1998, Dr Derek Jowell ⁶⁵, a senior anaesthesiologist in private practice and Dr Lance Tooke joined the team, and it was hoped they would be clinically productive in terms of clinical research.

Unfortunately, Dr Barry Bass resigned in 2000 and returned to the USA and his post was once more filled by Professor John Viljoen.

TOTAL PARENTERAL AND NUTRITION UNIT

The unit was originally started in 1977 by Julien Biebuyck ^{p 164, p 165, p 166, p 167}. In 1980 it was fortified with a commitment of one anaesthetic specialist and one anaesthetic registrar on a three monthly rotational basis. The service was subsequently administered by the Respiratory Intensive Care Unit, particularly by Dr David Linton ^{p 233}. However, in 1982, mainly as a result of the Department of Health's financial stringency and staff curtailment, it had to be downsized. The services of a consultant anaesthetist was withdrawn and control of the Unit passed onto the Department of Surgery, GIT Department in the care of Dr Mike Elliot. The Department of Anaesthesia's interest continued through the allocation of a part time specialist (Dr Eric Bean) and a half time registrar. In 1983, the administration of this Unit, jointly staffed by the Departments of Medicine, Surgery and Anaesthesia was reorganised under the control of Dr S O'Keefe of the GIT Clinic of the Department of Medicine.

About 245 patients received parenteral nutrition and about 150 subclavian catheters were placed, on average, per annum, providing valuable experience to the anaesthetic registrars.

On the technical side, pollution in operating theatre environments had occupied considerable space in the anaesthetic literature in the early 70s and following studies by Dr Beverley Lee Holt, a simple scavenging system had been installed in all theatres in 1977. Dr Malcolm Fryer from Oxford, who spent a year in the Department in 1977 had done work on anaesthetic circuits ^{p182}. As a result, the technical service in the Department had constructed a number of Bain Circuits ⁶⁶ which had proved valuable in certain circumstances.

By 1977 the Red Cross War Memorial Children's Hospital had an established reputation as a leading world centre for paediatric surgery. The vacancy created by the departure and appointment of associate Professor Tom Voss to the Royal Brisbane Hospital, Australia as senior Anaesthetist, was filled

by Dr Chris Swart who was appointed Head of the Anaesthetic Section at the Red Cross in a senior specialist post. In this post he was ably assisted by Dr Petro Malherbe.

DR CHRIS SWART

While we are on the subject, a few words about Chris would not be out of place. Chris was born on 19 November 1942 and grew up in Mossel Bay, graduated in Pretoria in 1967 and completed his anaesthetic training at Stellenbosch in 1974. Chris died prematurely on 16 September 1999, under tragic circumstances. Leish Horak in a brief obituary ⁶⁷ wrote “ ...Chris possessed an intellect of awesome proportion and power and lived a life apparently so unstructured and wild that most people simply gave up trying to know or understand him. The ‘real’ Chris was however a very much more complex person. Possessed of a fiery temper he was certainly not always nice and if you were on the receiving end of his ire, it was something not soon forgotten. There was always however, a complex logic behind his behaviour and once this was understood it was easy not to take permanent offence with him. This was probably why he was a man with few enemies.

He lived his life within a set of very complex rules and ethics which he used to protect a very gentle sentimental personality which was easily hurt. He allowed very few, if any, to be truly close to him any length of time. As he became older this barrier became increasingly difficult to penetrate. A real tragedy in that so gifted a man should allow himself to become so isolated and lonely. Chris’ contribution to anaesthetics and medicine in general cannot be measured in articles published or chapters written but rather in the hundreds of students, registrars, colleagues and nursing staff he influenced and taught. He instilled in them all the need for meticulous attention to detail and intellectual honesty. There is no doubt Chris made a significant difference to the anaesthetic and operative mortality for the better at the Red Cross Children’s Hospital while he was Chief there.”

After leaving here he went into private practice in partnership with Leish Horak and Anton Ferriera confining himself solely to cardiac anaesthesia, providing an outstanding service.

HEAD OF ANAESTHETIC SECTION - RED CROSS CHILDREN’S HOSPITAL

1956 – 1974
1974 - 1977

Arthur B Bull
Tom JV Voss

**HEADS OF ANAESTHETIC SECTION
RED CROSS HOSPITAL**



Prof AB Bull



Dr C Swart



Dr RD Cooke



Dr R Thornington



Dr AD Butt

1977 - 1980	Chris Swart
1980 - 1981	Richard Cooke
1981 - 1984	Roger E Thornington
1984 -	Anthony D Butt

On 13 March 1978, as part of the College of Medicine of South Africa Educational Outreach Programme to sub-Saharan Africa, Professor Bull visited various hospitals in Malawi. These programmes of one week's duration, generally consist of ward rounds, lectures and seminars, presentations to family practitioners, teaching and registrar (if any) interviews.

A highlight of the year 1979 was the UCT Medical Faculty meeting (UCT 150 Academic Festival) in celebration of UCT's 150th year. (1829-1979). During the week of scientific meetings from 1 to 8 December, the Department presented a two day programme on the 6th and 7th of that month, based on research in progress which ended with a session of presentations by past members of the Department from outside South Africa. The sessions were chaired by Professors AB Bull, GG Harrison, A Ferguson, and Drs J Ozinsky, A Burman ⁶⁸ and R Thornington ⁶⁹. The programme was very well supported by both ex-members of the Department and others. Many ex-members eg Dr B Fontein, Dr M Fryer, Prof John Viljoen, Dr E Krantz and Professor J Biebuyck came from the USA, UK, Holland, Germany, Canada, New Zealand and Rhodesia. The closing address was given by Dr Jack Abelsohn. A Departmental Reunion Dinner was held at the end of the programme and was attended by 250 members, past members and their wives.

A further milestone in the Department was the appointment of Dr John Couper ⁷¹, a former member and Head of the Department of Anaesthesia at Livingstone Hospital, Port Elizabeth, as Professor of Anaesthesia at MEDUNSA (the Medical University of South Africa) ⁷⁰ at Garankuwa, Northern Transvaal or Northern Province as the province is known today. John Couper had replaced Professor JE Combrink who had retired to Canada.

On 2 November 1979, Dr Jacob (Jack) Nathan Abelsohn died after cardiac disabilities, at the age of 69 years. He had been on a pacemaker for many years. Jack in association with Dr E van Hoogstraaten,

had administered the first Sodium Pentothal anaesthetic at the New Somerset Hospital on August 13, 1937, as well as the first anaesthetic at Groote Schuur Hospital when it opened in 1938. He was a Founder Member of the South African Society of Anaesthetists⁷². Even in death he did not abandon his cause. His will drawn up 2 months earlier read as follows: “.....in order to provide a prize annually or every second year to be known as the ‘*Jack Abelsohn Prize*’⁷³. This amount of R1000 is to be supplemented by the funds which I have already paid in to the accounts of the Society as a ‘Living Legacy’ which was commenced by me in 1970. The manner in which this prize will be allocated to be determined by the Executive of the SA Society of Anaesthetists.” In 1982 the amount of R1468. 93 was handed to the SA College of Medicine: (a) to add to the existing capital sum providing the *Jack Abelsohn Book Prize* for the best candidate in the clinical section of the final examination of the Fellowship of the Faculty of Anaesthetists, and (b) to provide a medal, to be known as the *Jack Abelsohn Medal* to be awarded with the book prize to the same candidate.

It is also with sadness that we recall the sudden death, on 18 January 1980 of Dr Fred Viljoen aged 32years, after returning home from his evening jog along the seafront. Born in 1947, he graduated MB ChB (UCT) in 1970. Worsening renal impairment which dogged his student days finally culminated shortly after graduation, in renal failure necessitating chronic renal dialysis. He received a renal transplant in 1976. A well liked registrar in the Department, of some years standing, he was a living advertisement for the success of renal transplantation as a definitive therapy of chronic renal failure. He served the hospital and patients well and selflessly. The post which he had held, was in fact allocated to the author of this history, Nagin Parbhoo who had left his GP anaesthetic practice in Port Elizabeth in February 1980, to specialize at UCT.

In March 1980 Dr Solly Benatar, an ex member of the Department was promoted to associate Professor of Medicine and 5 months later, appointed to the Chair of Medicine on 1 August 1980. This position became vacant when Professor Stuart Saunders was appointed Principal and Vice-Chancellor of UCT in October of 1979 and took over his new position in August 1980. Mrs Sheila Wood, the Departmental secretary, ended her service in November 1980 and her post was taken over by Mrs Maureen Scholtz on 01 November 1980. Maureen held this position for the next sixteen years, distinguishing herself

in her efficiency, her warmth, her compassion and her unique ability of running the Department, which towards the end consisted of about 84 members. She managed to do so with Swiss precision, and had a talent for keeping some recalcitrant surgeons at bay. The smooth running of the department was only possible because of the well oiled cogs maintained by the very efficient and cordial secretarial staff complement, often working under great pressure in not so suitable surroundings.

SECRETARIAL STAFF IN THE DEPARTMENT UNIVERSITY SECRETARIES

11 1961- 1983	Mrs Pat Strong
02 1976- 01 1978	Mrs Lou Rhodes (part time) RF
	Ms Sheila Ingram
07 1978-02 1987	Ms Johanna Garschagen
1987-07 1990	Ms Sylvia Pienaar RF
02 1987-12 1997	Mrs Shirley Green
08 1993-11 1997	Mrs Pauline Richter RF
01 1998-	Mrs Sandy Gunst
12 1998-	Mrs Diana Hoffa (part time) RF

(RF – research funded. Many of the staff members had their salaries paid from Departmental Research Funds as they were involved in the secretarial work of research.)

HOSPITAL DEPARTMENTAL SECRETARIES / RECEPTIONISTS CAPE PROVINCIAL ADMINISTRATION

	Mrs Marais
	Mrs Elizabeth (Bunny) Taylor
-11 1980	Mrs Sheila Hood
11 1980-11 1996	Mrs Maureen Scholtz
09 1990-10 1993	Ms Sharon Lovember
11 1993-11 1998	Ms Nicolette Judeel (Potgieter)
11 1996-05 2000	Ms Rosemary Riley
06 2000-	Mrs Lillian Maritz

A few months after the appointment of Professor Harrison as Head of the Department in 1981, one of the stalwarts in the Department, Dr Petro Malherbe took retirement after almost 25 years of service, on 30 June 1981. Petro Henriette Malherbe joined the Department in 1958 as a registrar and spent her whole career here, ending as Principal Specialist at the Red Cross War Memorial Hospital. Though, in fact, a clinical all rounder, it was in paediatric anaesthesia that she really made her mark. Most of us who had the privilege of training under her became very adept at inhalation induction and anaesthesia and this was twenty years before *VIMA* became 'fashionable'.

DEPARTMENTAL SECRETARIES



J Garschagen



M Scholtz



S Gunst



N Potgieter



R Riley



L Maritz

DEPARTMENT OF ANAESTHESIA UCT 1981

Front row : Profs GG Harrison, AB Bull, Drs J Ozinsky, AL Burman, PS Jenkin
 2nd row : Mr B Canovi, Drs PD Potgieter, DC Chapman, RE Thomington, El Elk
 3rd row : Drs PJ Mawson, SS Ger, ME Massing, PH Malherbe, PC Uys, WAR Erskine
 4th row : Drs GG Archer, EM Blaine, WD Bonner, CJ Hundleby, WP Blom, DF Morrell, IW White
 5th row : Drs EM Senior, SL Etoe, JE Hughes, CS Abels, AR Brown, AE Dick, JC Miller, PD Heyns,
 JJ Nurick
 Back row : Drs NA van Heerden, B Sapsford, Z Misnurer, PJ Bruwer, DM Linton, RG Mac Gillivray,
 AL Swanepoel, RD Cooke, LR Horak, PC Gordon, (inset) NP Parbhoo.



To honour her on retirement, a farewell party was hosted at the Red Cross Hospital on 26 June 1981 where she was presented with a painting, an artist's impression of herself in theatre, as well as a card table. She retired to Hermanus hereafter.

University of Cape Town

Notes and references:

- 1 The VI World Federation of the Societies of Anaesthesiologists' (WFSA) Congress took place in Mexico City during 24 – 30 April 1976.
- 2 The overseas applicants were Professor Roy Simpson and Drs David Henry McConnell, Roselle Mary Hewitt, Richard Hancock Ellis, Simon de Lange, Kenneth Wilbur Bretherton and Frank Brun.
- 3 Leah Atkins along with Les Meyerowitz and Peter Maytom was the first to obtain the MMed (Anaes) at UCT.
- 4 Dr Pieter Albert Vis joined the Department in 1960, was awarded the MMed (Anaes) from UCT in 1961. He left early in 1965 on study leave to work in various teaching hospitals in Holland and in particular to study the anaesthetist's role in hyperbaric oxygen therapy in Amsterdam. For many years he was senior consultant in the neurosurgical theatres.
- 5 Parbhoo NP. Professor Julien Biebuyck – A Tribute. *Pipeline/ Pyplyn* 1999; March No 32: 6
- 6 Dr Ian Alexander Sloan joined the Department in 1966, was awarded an MD (UCT) in 1969 and left for Canada the following year, in 1970.
- 7 Bateman E. The Respiratory Clinic 1965 to 1990 : The first 25 years p 5-7
- 8 Dr Arthur Landau graduated MB ChB (UCT) with honours in 1930 and was awarded the Gold Medal and the University Council Scholarship for the most distinguished graduate of the year. He received his MRCP in London in 1934. He joined the Department of Medicine in 1936 and from 1946 to 1960 was Head at the New Somerset Hospital . He succeeded Dr Louis Mirvish as Head of a medical firm at Groote Schuur Hospital in 1960.
- 9 Dr Rob Jedeiken obtained the FFA(SA) in 1971 and left Cape Town to take up an appointment as Chairman, Department of Anaesthesia, Tel Aviv University, Meir Hospital, Kfar-Saba, Israel.
- 10 Bateman E. The Respiratory Clinic 1965 to 1990 : The first 25 years p5.
- 11 GSH Annual Report. Velva Schrire 1971
- 12 Dr Cornelius Johnannes Cronje joined the department in 1971 and qualified FFA(SA) in 1974.
- 13 Dr William A Chappell joined the department in 1974, obtained his FFA(SA) in 1977 and was the first anaesthetist, after a few years spent in the Respiratory Unit, to run the Surgical Intensive Care Unit in 1982. He left the Department of Anaesthesia in 1983 for a career in private anaesthetic practice in Pietermaritzburg. A few years later he departed for Cuckfield, West Sussex, UK.
- 14 Dr Eric Bateman was promoted to associate Professor in 1986 and was Head of the Respiratory Clinic in 1989. In 1996 he was appointed to the Dean's Advisory Committee on establishing a UCT Medical Centre. The tremendous energy, work and expertise he put into the Lung Research Institute was rewarded with its formal opening in April 2000.
- 15 Dr RI Raine was a research fellow in the physiology laboratory for 3 years prior to his registrarship in the department of medicine. He was awarded the MMed (UCT) in 1993. Dr Raine succeeded Professor Potgieter in the Respiratory Intensive Care Units on his early retirement in 1996.
- 16 Dr Dave Linton was awarded the M Phil (Crit care) UCT 1990 for his thesis on ' Myasthenia Gravis at Groote Schuur Hospital : An Audit 1970-1990. He was a licensed pilot and for many years involved in the Red Cross Mercy Air Ambulance Service. Dave resigned in 1996 to take up an appointment as Director- Medical ICU, Hadassah Medical Centre, Jerusalem, Israel.
- 17 Dr Tom Ruttman joined the Department in 1992 and obtained the FFA(SA) in 1994.
- 18 *Journal of the Medical Association of South Africa*. Leader Article. 1931; February 28: 102-103. *Journal of the Medical Association of South Africa*. 1931; March 14: 150. (BMA)
- 19 *South African Medical Journal* 1932; VI (6) March 26.
- 20 Dr Michael Eric Howell joined the Department in 1964 and obtained his FFA(SA) in 1966. He was for many years an examiner for the DA and in 2000 was still holding a sessional post in the Department while in private anaesthetic practice in the northern suburbs.
- 21 Dr Richard Hancock Ellis undertook the task of compiling and completing the third volume of Dr William Stanley Sykes' Essays after his death in 1961. The Essays on the First Hundred Years of Anaesthesia first published in 1960, have become highly prized classics.
- 22 In 1957 the African Oxygen Company had written to the Society of Anaesthetists of their intention to award a medal to the most distinguished candidate in the final examination for the Fellowship of the Faculty of Anaesthetists. The medal bears the effigy of Joseph Priestly, the discoverer of

- nitrous oxide and oxygen. It was first awarded in 1961. Since 1979, as a result of a name change of the company, the medal was known as the Medishield Medal. In August 1993, the name was changed to the Crest-Healthcare Technology Medal.
- 23 P¹³⁶. Benatar SR, Ferguson AD, Goldschmidt RB. Fat Embolism – clinical observations and a review of controversial aspects. *Quarterly Journal of Medicine* 1972; **41**: 85.
- 24 Benatar SR, Hewlett AM, Nunn JF. The Use of Iso-Shunt Lines for the Control of Oxygen Therapy. *British Journal of Anaesthesia* 1973; **45**: 711-718.
- 25 Collins JV, Cochrane GM, Davis J, Benatar SR, Clarke TJH. Some aspects of pulmonary function after rapid saline infusion with normal subjects. *Clinical Science & Molecular Medicine* 1973; **45**: 407-410.
- Benatar SR, Clark TJH. Pulmonary function in a case of endobronchial sarcoidosis. *American Review of Respiratory Disease*. 1974; **110**: 490-496.
- Benatar SR, Konig P. Maximal expiratory flow and lung volume changes associated with exercise-induced asthma in children and the effect of breathing a low-density gas mixture. *Clinical Science & Molecular Medicine* 1974; **46**: 317-329.
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- Cochrane GM, Prieto F, Hickey B, Benatar SR, Clark TJH. Early diagnosis of airways obstruction. *Thorax* 1974; **29**: 389-393.
- Bellamy D, Newsom-Davis JM, Hickey BP, Benatar SR, Clark TJH. A case of primary alveolar hypoventilation associated with mild proximal myopathy. *American Review of Respiratory Disease* 1975; **112**: 867-873.
- Benatar Sr, Clark TJH, Cochrane GM. Clinical relevance of the flow rate response to low density gas breathing in asthmatics. *American Review of Respiratory Disease* 1975; **111**: 126-134.
- 26 Full timers often did not take into account the additional benefits of annual leave, study leave, sabbatical leave, housing subsidies, relocation cost reimbursement, car allowances, pension schemes, 75% reduction of university fees for their offspring, research grants and travel allowances, use of secretarial staff, computers and internet facilities, the thirteenth cheque to name some advantages of full time service. Perhaps if these were emphasised, staff could be induced to stay on.
- 27 Parbhoo NP. Five Decades – The South African Society of Anaesthetists 1943-1993. 1993: 185-193.
- 28 South African Society of Anaesthetists. Cape Western Branch minutes . Chairman's report . May 1972.
- 29 The Nico Malan Theatre underwent a name change to the Artscape theatre in 2000.
- 30 Dennis Glauber along with Anthony Vietri and Arthur Bleksly were household names in the mid 60's and 70's in the Springbok Radio quiz game 21. Dennis was a champ for many years. He graduated at Witwatersrand University in 1949 and obtained the DA (Wits) in 1960. He served on SASA Council for 21 years from 1958-1979 and was instrumental in introducing the Unit Value Schedule of fees in South Africa. He left South Africa for private anaesthetic practice in Seattle, USA.
- 31 Horace's Odes, Book 1, XI, 8.
- 32 Pretorius JA. Narkosetegniek vir mediese studente – translation of the 4th Edition of "Anaesthesia for medical students" by Bryce Smith and Ostlere. Juta & Co.1961.
- 33 *Geneeskunde* 1962; **4** No 4, 28 April: 120.
- 34 Hilde Ginsberg graduated MB ChB (Wits) in 1936 and obtained the DA RCPS (Ire) in 1949. She was a Founder member of SASA in 1943, its President in 1953, 1961 and 1972. In 1963 she was appointed Head of the Department of Anaesthetics at Baragwanath Hospital and associate Professor in 1968 at that hospital. She retired from Baragwanath (Chris Hani) Hospital in 1974. In 1988 she moved to be with her family in Miami, Florida, USA.
- 35 Parbhoo NP. Five Decades – The South African Society of Anaesthetists 1943-1993. 1993: 189-195.
- 36 Jan F Crul is Professor of Anaesthesia at St Radboud Ziekenhuis, Nijmegen, the Netherlands and a founder member of the European Academy.

- 37 While in Belgian Congo, she met Guy Roefs, a Belgian and married him. She retired from full
time anaesthetic practice on 30 October 1972. Leah joined the Department in 1947 and left after
25 years ! She died after a long illness in 1976.
- 38 Peter Herbert Bradley Maytom was born on 2 October 1925 and graduated MB ChB (UCT) in
1949. In 1956 he was appointed head of the department of anaesthetics at Edendale Hospital in
Pietermaritzburg. He left here in 1958 for private practice in Durban and along with Dr Mesham
ran one of the largest group practices in South Africa. He was an active member of both SASA
and MASA, having been SASA President during 1975-1976 and President of the Medical
Association of South Africa for the term 1994-1995.
- 39 LS Meyerowitz left the Department in 1956 and pursued a career in private anaesthetic practice in
Johannesburg.
- 40 Dr Piet Vis returned to a senior post in the Netherlands in 1973, after 13 years in the Department.
- 41 Langa is a Bantu township on the Cape Flats, outside Cape Town. Early in 1960 leaders of the
African National Congress and the Pan African Congress called for country-wide black
demonstrations aimed particularly at the hated pass laws. At Sharpsville, near Vereeniging, this led
to a confrontation with the police. Shots were fired and 69 demonstrators were killed with 180
wounded on 21 March 1960. At Langa, similar demonstrations took place when 2 demonstrators
were killed and several wounded.
- 42 Ndabeni was originally a black settlement bounded by the suburbs Maitland, Observatory and
Pinelands. The residents were dispossessed of their land and the area industrialised by the
government. It had a major railway running through its centre serving the industries there.
- 43 Dr Theodore Schrire graduated MB ChB (UCT) in 1930 and became a registrar in general surgery
in 1936.
- 44 Bateman C. 'E M – A compelling new specialty. *South African Medical Journal* 2001; **91** (1): 25.
- 45 Koopman Andre. Parliamentary Bureau. *Cape Argus* 2001; 18 October: 6
- 46 Sir Ernest Oppenheimer – a South African mining and industrial magnate, who was born at
Friedburg, Germany in 1880. Upon the outbreak of World War I, and by securing backing from
the United States, he took over large German and other interests and established the Anglo-
American Corporation of South Africa. He reorganised the diamond industry and within a short
while, virtually the whole industry was under his control. He died in 1957 in Johannesburg ,
leaving almost a third of his estate (about a £1 million) for public purposes. His son, Harry
Frederick Oppenheimer, born in 1908, took over the empire.
- 47 Dr Mary Christine Milne joined the Department as a senior anaesthetist from the UK (FFA RCS
(Eng) 1967) in 1974. She remained here until 1983 when she opted for a change in career and
joined the Department of Psychiatry. She obtained the FF Psych (SA) in 1987, registered with a
sub-speciality Child Psychiatry.
- 48 Dr Jack Cowlin passed away peacefully on 11 September 2001- the worst day of terrorism the
world has known, with the destruction of the Twin Towers in New York, USA.
- 49 The B2 theatre complex was converted after demodernisation to the Heart Transplant Museum.
- 50 In November, after his death on 2 September 2001, the building was renamed the Christiaan
Barnard Building in his honour.
- 51 The University of Leiden was founded in 1575, the first of the universities of Holland : it
antedated by seven years the creation of the University of Edinburgh. The University was in fact a
gift from William, the Prince of Orange to the heroic citizens of Leiden who had freed the town
from the Spanish yoke of Philip II of Spain. The University, not long after its creation, attained an
outstanding position amongst the universities of northern Europe. Leiden at its creation included a
faculty of medicine as an integral part of its *stadium generale* and within a few years the city
became famous as a centre of medical education.
- 52 St Bartholomew's Hospital was founded by the Augustinian Canon Rahere in 1123 during the
reign of King Henry I, son of William the Conqueror. The charitable work continued on a
religious basis until King Henry VIII seized the revenues at the time of the Dissolution. The Lord
Mayor of London obtained a second charter in 1547, and placed the hospital on a secular basis, A
medical school gradually grew and was formally recognised in 1830. It is now a constituent
college of the University of London. Many South African doctors were members of their Rugby
Football Club which celebrated the centenary of its formation in 1966.

- 53 St Mary's Hospital in London was established in 1843, the foundation stone having been laid by the Prince Consort on 28 June 1845. The hospital was rebuilt in 1903.
- 54 Afrikaans is the youngest member of the Germanic group of languages and like Dutch, English and Frisian it is Western Germanic. It originated from the Dutch dialects of the 17th century and developed into a separate language, during the century and a half of the rule of the Dutch East India Company at the Cape. In 1918 Afrikaans was elevated to the status of an official language of the Union and in 1925 it replaced Dutch as one of the languages of Parliament.
- 55 Steve Biko was born in Kingwilliamstown in 1946 and died in Pretoria in 1977. While attending Natal Medical School, he was co-founder and 1st President of the all-black South African Student's Organisation (SASO) the aim of which was to raise black consciousness and self-esteem. This group broke away from NUSAS to form their own association. Steve Biko had family ties with the UCT's 7th Vice-Chancellor (1996) Dr Mamphela Ramphele.
- 56 Sir Graham Bull, a graduate of UCT, MB ChB 1939 and Professor of Medicine in Queen's University, Belfast (1954). In 1964 he was appointed Director of Clinical Research Centre at Northwick Park and deceased in about 1989.
- 57 Robert Gray, the first Bishop of Cape Town landed from the UK in February 1848. Technically his landing changed Cape Town from a colonial outpost to a cathedral city, the gateway to a sprawling, unwieldy diocese. In his first year of episcopacy he planned to establish a school. 'The education given will be such as to fit pupils for secular employments and professions, as well as for the church.' He leased a property called 'Protea' near Claremont (Bishopscourt today). This was the beginning of the Diocesan College or Bishops as we know it at present.
- 58 The Association of University Anaesthetists was formed in 1972 as a sub-group of SASA, more like a separate branch. It was originally felt by some members that SASA was devoting more of its energies to private practice and not enough for academia. Their aim was to promote academic anaesthesia in all aspects. It was also to further promote co-operation between the teaching departments of anaesthesia in South Africa in the areas of research, teaching and standards. By 1986 there was general consensus that there was very little difference between the AUA and SASA congresses. Two years later it became defunct and its books were closed in January 1990. See 'Five Decades' 1993: 197-204.
- 59 Obit. Parbhoo NP. *Pipeline/Pyplyn* 2001; April No 40: 3
- Obit. Foster Pat. *Pipeline/Pyplyn* 2001; April No 40: 4
- 60 Obit. Harrison GG, Parbhoo NP. *South African Medical Journal* 2001; **91** (5): 401
- 61 Obit. Parbhoo NP. *The Cape Doctor* – Cape Western Branch Newsletter of SAMA 2001; **41** (2): 22.
- 62 Erskine WAR, Melvill RL. Chronic Pain Problems – Experiences in a Pain Clinic. *South African Medical Journal* 1981; **59** (24): 859-860.
- 63 St Luke's Hospice started in August 1980 with Dr Christine Dare. By February 1983 it was run as a voluntary service from the old staff dining room at the Vincent Pallotti Hospital in Pinelands. As it outgrew this room it was moved to the Priest's cottage. After a short while they were transferred to Trill Road, Observatory where they remained for about 9 months. In 1985 they located themselves at the present address in Harfield Road. In 1986, for the first time, they were able to offer a ward as a facility.
- 64 The William Slater Hospital situated in Rondebosch, was for many years a rehabilitation centre for alcoholics. It is now under the wing of the UCT Department of Psychiatry.
- 65 Dr Derek Mark Jowell joined the Department in 1961, obtained the DA RCP(Lond) RCS(Eng) in 1955 and the FFARCS(Eng) in 1956. He took an active interest in the affairs of SASA and during 1974-75 and again during 1992-93 was chairman of the Cape Western Branch of SASA. He was instrumental in being the first to table the matter of the 'impaired physician' at the CWB SASA meeting in 1985. This was taken up by the committee and a 'flow diagram' both for non-punitive management and care of the physician as well as peer review, was prepared. A few years later this document formed the basis of the Health Professions Council guidelines.
- 66 The Bain Co-Axial System is a modification of the Mapleson D system in which the fresh gas enters the system through a narrow bore inflow tube which lies within the lumen of the exhalation limb. It is light in weight, can be used for all age groups, and carbon dioxide absorption is not necessary. It is suitable for both spontaneous and intermittent positive pressure ventilation. Bain JA, Spoerel WE. *Canadian Anaesthetists Society Journal* 1972; **19**: 426.

- 67 Dr Arthur Leviticus Burman was born in 1918 and graduated MB ChB (UCT) in 1942. He joined the Department as a registrar in 1961 and obtained the MMed (Anaes) in 1964. He remained here, ultimately as Principal Specialist until his retirement in 1983. He continued as honorary consultant until his death at the age of 72 years, in 1991. His lifelong interests were sports and opera. A cricket blue at varsity and 1st league player for some years post-war, he was to the end a 'fixture' at Newlands whenever any test or Currie Cup match was being played. He was an official rugby referee and coach as well as manager of the UCT Under 20 team for several years. His other skill enabled him to become the first bowls singles champion of the King David Country Club, a club for which he also served as Chairman. His greatest love was grand opera – the art form he felt was most holistic. For many years he was a member of the Friends of the Nico Malan Opera, and at the time of his death, was serving his third term as the organisation's President. The surgical colleagues had erroneously labelled him as a frequent cancellor of cases which he deemed unfit, particularly in their estimation, when there was a great rugby game in the offing ! Many hours would be spent by surgeons relating these varied anecdotes, but be that as it may, Al was a meticulous anaesthetist, an excellent teacher and one who was also skilled in regional field blocks. See : Five Decades 1993: 90-91.
Obit. Harrison GG. *South African Medical Journal* 1991; **80**: 525.
- 69 Dr Roger Edgar Thornington arrived from the UK in 1971, joined the Department as a registrar and obtained his FFA (SA) in 1976. In 1981 he was appointed Head of Paediatric Anaesthesia at the Red Cross Children's Hospital and he remained here till 1984, after which he returned to the Royal Liverpool Children's Hospital, Alder Hey, UK as Consultant Anaesthetist.
- 70 MEDUNSA was opened in 1976 as part of the government's 'separate development' policy, in Ga-Rankuwa, Republic of Bophuthatswana. It was approximately about 25 kilometres northwest of Pretoria North. It lay in what was formerly part of northern Transvaal, now the Northern Province.
- 71 Professor John Laurence Couper was born on 21 May 1925 in Durban. He completed his first year MB ChB (UCT) in 1943. During the war from 1944-46 he served with the South African Force as Cypher Clerk with the rank of Sergeant in Pretoria and 7 Wing SAAF. He graduated in 1954 and thereafter decided on a career in anaesthetics at Livingstone Hospital in Port Elizabeth. John, in spite of all the odds against him, put in long hours, with minimal staff and developed it into a full department, adequately equipped by the time he left for Pretoria. In 1965 he was seconded to GSH as a registrar and obtained his FFA(SA) in 1967. In 1979 he took up the appointment as Professor of Anaesthetics at MEDUNSA. It was here that he applied the same formula and developed a virtually non-existent department into one that there is today. With an interest in the history of anaesthesia, he was awarded a PhD at MEDUNSA for his thesis on 'The introduction of Ether anaesthesia into South Africa' in 1990. He was an active member of SASA and was its President for two terms in 1978 and 1987. The ravages of time took their toll and he died on 29 January 1997 at the age of 71 years, after a further stroke. see:
Parbhoo NP. Five Decades 1993: 220-223.
Parbhoo NP. Personality Profile. *Pipeline/Pyplyn*. 1995; July No 19: 5
MASA Merit Award *South African Medical Journal* 1990; **77** 16 June: xxiii.
Obit. Parbhoo NP. *Pipeline/Pyplyn* 1997; Issue No 25, April.
Obit. Parbhoo NP. *South African Medical Journal* 1997; **87** (8): 1027.
- 72 The Inauguration of the South African Society of Anaesthetists took place on 1 August 1943. See Hilde Ginsberg – Founder Member. Five Decades. 1993: 33-35.
- 73 The Jack Abelsohn Medal and Book Prize for outstanding performance in the Clinical section of the Fellowship examination of the College of Anaesthetists (CMSA) is administered by the College.

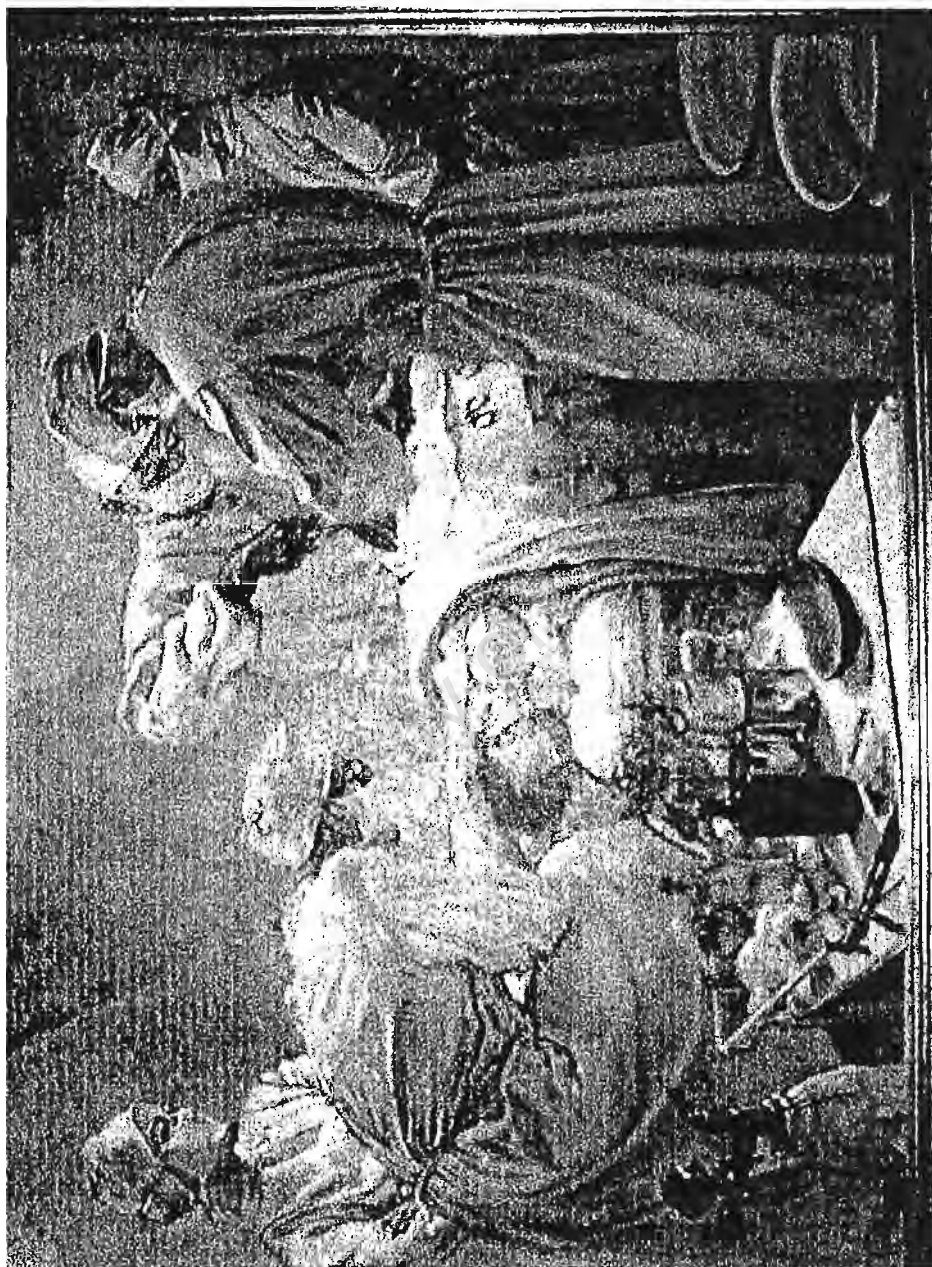
CHAPTER VI

THE HARRISON ERA or THE ERA OF HOT PIGS

Following a study and research tour as visiting Professor to the Division of Anesthesia, Hershey Medical Center, Pennsylvania State University, Pennsylvania, USA and the Department of Anesthesiology, Tucson Medical School, University of Arizona, USA in September and October 1980, Professor Harrison returned to the Department to take over as head in 1981. Unlike Professor Bull, primarily a clinician in later years, who was seen in the Departmental office and nerve centre in Groote Schuur Hospital mixing with all the members of the staff on a daily basis, especially pre 08h00 (he called it keeping the finger on the pulse of the department), Professor Harrison, a researcher, occupied the more comfortable academic office of the Department next to the experimental laboratory in the HD & OT Building. It was from here that he ran a tight ship as well as his research, which earned him and the Department international recognition over the years.

On 16 September 1981, Professor Harrison presented his Inaugural Lecture ¹ *'The place of Anaesthetics as a Discipline in Contemporary Medical Practice – Some Difficulties, Dilemmas and Direction'* at the Robert Leslie Building, lecture theatre, upper campus University of Cape Town. He was the first incumbent of the Chair of Anaesthesia to give an inaugural lecture and this became traditional thereafter.

".....I stand before you tonight as the second incumbent of the Chair of Anaesthesia at the University of Cape Town. I am privileged to have on the platform with me tonight, Professor Emeritus Arthur Bull, the first incumbent of this Chair. That I could take over so smoothly running a department, and a large department at that, with a list of applicants for registrar posts which has been for the last several years, persistently far in excess of the number of possible vacancies our establishment, is indeed a great tribute to him. Besides working conditions and the like, what attracts staff to teaching departments such as ours, is the excellence of its teaching programmes and the quality of the graduates who emerge as the end products. In all, Professor Bull was head of the Department of Anaesthesia for 20 years, the Chair of Anaesthesia being inaugurated after he had been in the post for five years. During his term of office, the



Anaesthetic Department establishment grew from one of 10 registrars or trainees with 10 full time specialists – a total of 20 doctors responsible for 20 000 anaesthetics per year, to one of 30 registrars and 33 full time specialists, a total of 63 anaesthetists, responsible not only for 50000 anaesthetics per year but also having considerable involvement with other services which, while not involving the actual administration of anaesthetics, do involve the input of what one might term ‘anaesthetic clinical expertise’, services such as the Acute Respiratory Medicine Unit, the Trauma Unit, a unit for the treatment of intractable pain, and most recently, the Total Parenteral Nutrition Unit.

.....Tonight Ladies and Gentlemen, I wish to present Anaesthetics to you in the broader context of the provision of health care, to examine with you some of the *Difficulties* engendered by advance and increasing demand for service, to describe the *Dilemma* with which growing superspecialisation within Anaesthesia as a discipline is facing us, and to suggest some *Directions* that may lead us to solutions of the developing problems.

Development

Although Anaesthesia per se does not correct deformity, restore health nor stay death, by making possible activities which do accomplish these things, it is perhaps the most important adjunct to the treatment of the surgical patient in the broad sense or of any patient who, as part of the diagnosis and treatment of his disease, requires to undergo procedures that may be distressful or painful.

Today there is visible interdependence between Anaesthesia and most of the disciplines of medicine, Those familiar with Medical School will have noticed that visible expression is given this idea by the hanging of the painting ‘*Surgery*’ by Dorothy Kay in the most central position on the campus at the top of the main staircase in the Old Pathology Building. It portrays Anaesthesia and Surgery in 1939.

Every year, one in every 20-25 persons requires to undergo a procedure which involves an anaesthetic. Accepting that the population of this country geographically (as against politically) was of the order of 25 million at the last census, it means that in South Africa approximately one million individuals



40 Professor Gaisford G Harrison

are subjected to anaesthesia each year. So anaesthesia is no remote affair but directly affects the lives of an appreciable section of the population. For each of these who submits to a general anaesthetic, be it short or long, there is the realisation and in many cases perhaps the fear that for that period he is surrendering total control of his consciousness and control of his physical well-being to another, the anaesthetist. This fear expresses itself sometimes flippantly, sometimes timidly in the question to the anaesthetist, 'I will wake up, won't I Doctor?' or perhaps the reverse, 'Make sure I'm asleep before they cut, Doctor'. In other words the patient is apprehensive that the process of anaesthesia may not be adequately 'controlled'. Refinement in this 'control' both of consciousness and pain perception and the body's general physiological homeostasis, is what has characterised advances in knowledge and techniques of anaesthesia since the second World War.

.....During general anaesthesia drugs are administered to the patient which depress not only consciousness and pain perception, but also by their very nature, the homeostatic mechanisms on which life depends. It was this aspect of anaesthesia which prompted a learned English judge to remark during an inquest on a patient who had died during an operation, 'It is a fact that to anaesthetise a human being, to deprive him of consciousness outright, is to take a considerable step along the road to killing him' – sentiments that were given a biblical connotation by Harold Griffiths ² who, quoting Psalm 23, described the anaesthetist as conducting his patient, 'through the valley of the shadow of death'.

Harold Griffiths it was, who in 1942 pioneered the use in clinical anaesthesia of curare ³ in order to relax muscle tone and allow easier surgical access, an event which completely revolutionised anaesthetic practice, taking it from an era of 'this drunken dark, this little death in life' to one of 'physiological trespass' a phrase he coined.

I was interested recently in re-reading Griffiths' original paper on *The Use of Curare in General Anaesthesia* ⁴ to see what a short, unpretentious, and in fact, rather poor communication this was when we consider the veritable watershed it proved to be. This paper describes the use of purified curare extract Intocostin ⁵, in but 25 operations of which 12 were appendicectomies and only 7 upper abdominal

laparotomies. Almost a century earlier (1850), Claude Bernard ⁶ had demonstrated the site of action of this drug to be the neuro-muscular junction. Quite simply, it paralysed skeletal muscle in a pharmacologically reversible way without effect on consciousness or other bodily functions. Curare, the active ingredient of South American Indian arrow poison has a long and fascinating history and had been known in Western Europe as something of a scientific curiosity since the late 16th Century when its existence was first reported by Walter Raleigh ⁷.

With the use of curare, what came to be seen as the triad of general surgical anaesthesia, sleep (*hypnosis*), loss of pain perception (*analgesia*) and neuromuscular block (*muscle relaxation*) for surgical access (today many would add a fourth desideratum, autonomic control), could be provided by the use of individual drugs in moderate dosage in contrast to the need until then of achieving all, in particular muscle relaxation, with heavy dosage of a single anaesthetic agent, be it ether ⁸, chloroform ⁹ or cyclopropane ¹⁰ with the inherent marked depressing effect of such action on physiological homeostasis. At the light levels of narcosis that were now feasible, more precise control of the patient's physiological homeostasis with less deviation from the normal, became possible.

The paralysis of skeletal muscle induced by curare extended ultimately to paralysis of muscles of respiration. Correction of this effect with artificial respiration by way of intermittent positive pressure ventilation (IPPV) together with the accompanying use of routine endotracheal intubation soon became the stock-in-trade of the anaesthetist. These techniques served also as a stimulus to the vast amount of ongoing research into aspects of respiratory physiology and ventilator technology that have become basic to modern Anaesthetic and Critical Care Medicine practice. In addition, they made possible means of treating many forms of respiratory failure, saving countless lives from such conditions as tetanus, poliomyelitis and other neuropathies, chronic obstructive lung disease, shock lung or adult respiratory distress syndrome and several forms of poisoning.

A widening of pharmacological horizons followed which embraced the development not only of other neuromuscular blocking drugs, but also drugs which affected other functions of the nervous system

such as the autonomic, so intimately bound up with the body's response to stress, analgesic drugs which selectively depress pain perception and new classes of anaesthetic agent, both intravenous and inhalational.

Besides the preserving of physiological homeostasis, it soon became apparent in the early 50's that for certain types of surgery it was expedient and possible with the use of autonomic blocking drugs to 'bend' the homeostatic responses of the body without damage to the precious 'milieu interior' so as, for instance, to deliberately lower the patient's blood pressure, thus reducing haemorrhage or blood loss at the operative site in circumstances when even minimal bleeding would obscure surgical access such as in surgery for intracranial aneurysm, microsurgery of the ear and certain types of cosmetic and plastic-reconstructive surgery. These efforts at actual control of the body's homeostatic mechanisms in the interests of greater patient safety and surgical access extended to control the rate of utilisation and uptake of that very key life-support substance, oxygen itself.

Of all the body's organs, the brain is the most exquisitely sensitive to oxygen deprivation. Deprived of oxygen for as short a period as four minutes, the brain will die. By cooling the anaesthetised patient – the techniques of induced hypothermia – the utilisation of oxygen and with this the need for oxygen can be safely reduced and that critical four minute barrier extended. Development of this technique permitted the extension of surgical initiative to operation on the heart and brain which necessitate the suspension of the circulation for limited periods. Today for instance, in the correction of certain congenital heart defects, profound hypothermia ^{11, 12} to a temperature of 15°C is used during which total circulatory arrest may be safely imposed on the patient for as long as 45 minutes or more – truly suspended animation.

Monitoring of vital functions

This growing ability of the clinician, not only to preserve, but also expediently to control the body's homeostasis, brought with it the need for accurate measurement and assessment of vital parameters, a need which fortunately coincided with the post-war surge in electronic technology. It was no longer necessary, nor indeed permissible to guess – physiological modalities could be measured with speed and

accuracy. What could be considered a research facility one day would rapidly become a clinical necessity the next.

It was not only the measurement of the physical modalities such as pressure, volumes of flow and temperature that were made easy, but also rapid assay of various chemical constituents of the blood such as acid base state,¹³ the tension of respiratory gases oxygen and carbon dioxide, the concentration of electrolytes sodium and potassium and other substances. Indeed, by the middle of the 50's, a decade or so after Griffiths' introduction of curare, clinical anaesthesia, which had formerly euphemistically been called an 'art' – a clinical art – had now much of the trappings of a science comprising facilities for observation, measurement, inference, deduction and reaction. Anaesthesia had now become to a great extent quantitative and analytical. Through this burgeoning involvement of the clinical anaesthetist with the wider field of applied physiology and pharmacology, with physics and its adaptation to clinical measurement, anaesthesia became a subject in which the main streams of medical education overlapped with a very considerable degree of integration strengthening its claim to be an academic discipline.

Anaesthetics – the academic milieu

The development of anaesthesia as an academic discipline owes its start in the immediate pre-war era to two very determined (of course very enlightened) university donors who cudgelled two very famous, and at that time, very unwilling, universities into accepting endowed chairs of anaesthetics onto their medical faculties.

The first was Oxford University. In 1936, William Morris – the car magnate, later Lord Nuffield¹⁴ – when endowing for Oxford Chairs of Medicine, Surgery and Midwifery insisted on the inclusion of a Chair of Anaesthetics. When the University demurred, suggesting that Anaesthetics warranted a department headed by a Reader (senior lecturer) only, he threatened to offer the total endowment to a London University. He had his way. In 1937, Robert Macintosh became the first incumbent in the world of an endowed chair of anaesthetics.

Coincident with the establishment of the Oxford Chair and perhaps of equal importance to the academic advance of Anaesthetics as a discipline, was the establishment by the Conjoint Board of the Royal Colleges of Physicians and Surgeons of England ¹⁵ of the first postgraduate specialist qualification in anaesthetics, a Diploma in Anaesthetics, a qualification later expanded in scope to attain Fellowship status.

In America, it was Harvard University which suffered a similar fate. Henry Isiah Dorre, a dentist, refused to be deflected from his wish to endow a Chair of Anesthetics by the University Council opinion that, 'Anesthetics is so narrow a subject that a good man would not want to tie himself down to it'. They suggested that the money be used to found a Chair of Pharmacology. But, like Morris, Dorre had his way. Henry Beecher ¹⁶ was appointed to this Chair in 1941. These two men had a great impact on thought, teaching, attitudes and goals in Anaesthetics – Macintosh perhaps more clinical, Beecher more research orientated.

These two Chairs became the prototype of the many that were to follow worldwide. Today it is a strange faculty indeed that does not include a Chair of Anaesthesia. In this country the initiation in the various provinces in 1951 and thereafter of a Joint Agreement between the provincial hospital authorities who provided the money and the university medical schools, the staff and teaching for medical school hospitals, aided immeasurably the academic growth of all disciplines including Anaesthesia. This followed the full time staffing of teaching hospital departments in contrast to the previous system of part time honorary visiting medical personnel and lecturers. But in the case of Anaesthetics, the universities were somewhat slow in crowning this growth by the establishment of chairs – doubtless due to lack of endowment funds. Pretoria was first off the mark in 1960, followed by Natal and Witwatersrand with this University a somewhat belated fourth in 1965. Today of course, all seven medical faculties in South Africa have Chairs of Anaesthetics which aim to provide a sound academic background to the teaching and practice of Anaesthetics.

Hopefully they provide also encouragement of and backing for research. Here I must briefly state my credo. Though I believe the prime function of a teaching department is service to patients and the

turning out of graduates who in turn will further provide sound and dedicated patient care, the teachers themselves should not become merely parasitic on the work of others. Some spontaneous combustion is desirable as well as the making of some contribution to the corpus of knowledge and philosophy of the discipline. When the teacher is not stimulated by some commitment to research, his teaching may well become unimaginative and in danger of being fixed in outmoded concepts. Solutions to clinical problems come from new ideas, tested as often as not in the laboratory. New ideas develop best in the presence of a strong research community aware of the problems.

In this regard, my own Department has in fact been fortunate over the years. Research as it is well known, unfortunately costs money. The coincidence that the man who administered the first general anaesthetic for major surgery in South Africa in Grahamstown in 1847, Dr William Guybon Atherstone, was also the man who positively identified the first diamond found in South Africa, motivated Anglo-American and De Beers to institute on the occasion of their centenary in 1965, the Anglo-American and De Beers Anaesthetic Research Fund, an event coincident with the inauguration of this Chair of Anaesthesia. This was later followed by further generous donations by the Joseph Stone Anaesthetic Research Fund. These two funds have allowed a ready encouragement of research in our Department, research which over the years has covered topics as varied as the rapid warming of cold stored blood ^{p 89. p 94. p 102. p 103}, factors affecting foetal oxygenation during Caesarean section ^{p 113. p 115}, understanding and control of that rare fatal reaction to anaesthesia, Malignant Hyperthermia, metabolism of drugs by the liver, central neurotransmitters in states of coma and anaesthesia and pharmacokinetics with the use of Gas Liquid and High Pressure Liquid Chromatography assay techniques, research which has resulted in the publication during the last 15 years of more than 200 scientific papers.

The safety of anaesthesia

I have spoken broadly so far of advances in Anaesthesia in terms of the increased surgical initiative permitted and the broadened academic and research endeavour this stimulated. But what of the individual patient? True advances in the discipline should be reflected in a greater safety of anaesthesia for

the individual patient – remember the patient's question with which I commenced, 'Will I wake up, Doctor?'.

The most fundamental index of the Safety of Anaesthesia for the patient is the frequency with which factors related to the administration of an anaesthetic cause or are contributory to the death of a patient. This in itself is not something that can be estimated with scientific precision. Death during an anaesthetic may result from either :

- (1) the disease or illness for which the operation is indicated, or
- (2) (dare I say it) surgical misadventure, or
- (3) (regrettable) anaesthetic mishap or a combination of all of these.

Accepting the difficulties inherent in assessment and the fact that surveys of this nature are somewhat pedestrian and tedious in the extreme to conduct, they do provide, as I see it, the only means by which we can evaluate the safety of anaesthesia for the patient. I have surveyed and assessed all mortality associated with anaesthesia at Groote Schuur Hospital for the past 25 years during which time more than a half million anaesthetics have been administered.

Some figures from this study and certain comparisons that can be made will perhaps interest you and cheer you a little when you have to submit to an anaesthetic. Groote Schuur Hospital, as you will remember, opened in 1938. Royden Muir, one of the pioneer anaesthetists in pre-war Cape Town (also of course, pre-curare Cape Town) surveying the first 18 months' activity in Main Theatre, Groote Schuur Hospital¹⁵ (see Fig 4) reported 14 deaths occurring during anaesthesia in the first 2216 general surgical operations performed in the Hospital – a rate of anaesthetic associated death of 6.22/1000 anaesthetics. The comparable figure from my survey for the years 1956-65 was 1.1/1000. This remember, is for general surgery only and includes deaths in all three of the categories I referred to. I mention it here because it is the only survey of this type at Groote Schuur with which I could compare. But let us look more precisely at deaths *due* to Anaesthesia. (see Fig 5)

A Government appointed commission¹⁷ reporting on the deaths due to anaesthesia for the period 1931-35 reported a death rate of 0.82/1000 anaesthetics (approximately 1/1000). A comparable rate –

0.94/1000 – admittedly for a rather broader spectrum of surgery – was reported by the Johannesburg General Hospital 15 years later in 1951/2. At the same time a rate nearly three times greater – 2.29/1000 – was reported for the Coronation Hospital in Johannesburg for the period 1945-51. ¹⁸

The first really authoritative survey of anaesthetic associated mortality in South Africa was sponsored by the CSIR and directed by Professor Kok, the first Professor of Anaesthetics at Pretoria University ¹⁹. It covered material from 150 hospitals in the Transvaal and Natal from 1956 – 62 and included as he racingly described it, ‘a million anaesthetics and a thousand deaths’. This survey reported a rate of death *due* to Anaesthesia of 0.49/1000 anaesthetics, i.e. 1/2000 – showing a gradual decline on an annual basis.

My ongoing study at Groote Schuur Hospital further portrays this cheering message that anaesthesia is indeed becoming safer all the time ^{p112a}. The first 10 year period 1956-66 produced an overall rate of death due to anaesthesia of 0.33/1000 anaesthetics (1/3000) and that for the next 10 years 1967-76, 0.22/1000 anaesthetics. On an annual basis (see Fig 6) the rate dropped with some fluctuations from a high at the commencement of the survey in the last two years surveyed. Put in another way, the rate of death due to anaesthesia (fallen from 1 in 2000 anaesthetics to 1 in 7½ thousand anaesthetics) is evidence of a residuum of human error, a real increase in safety of anaesthesia is obvious and this improvement has occurred, be it remembered, *pari passu* with advancing surgical initiatives such as the development of open cardiac and major vascular surgery. These figures compare favourably with those published by the only centres in the USA and Australia that have undertaken similar studies.

An obvious caveat is that the figures I have produced present the situation as it exists here in a teaching hospital. Neither I, nor I think anyone else, can say how they relate to the situation at non-teaching hospitals, private practice or more important, the country hospitals. Nonetheless, it is a sobering thought that if we accept this modest death rate of 0.2/1000 anaesthetics as a minimum estimate for the country as a whole, 200 people die every year in South Africa *because* they are anaesthetised. This may well be an under-estimate.

GROOTE SCHUUR HOSPITAL

DEATHS IN MAIN OP. THEATRE

pre and post

CURARE

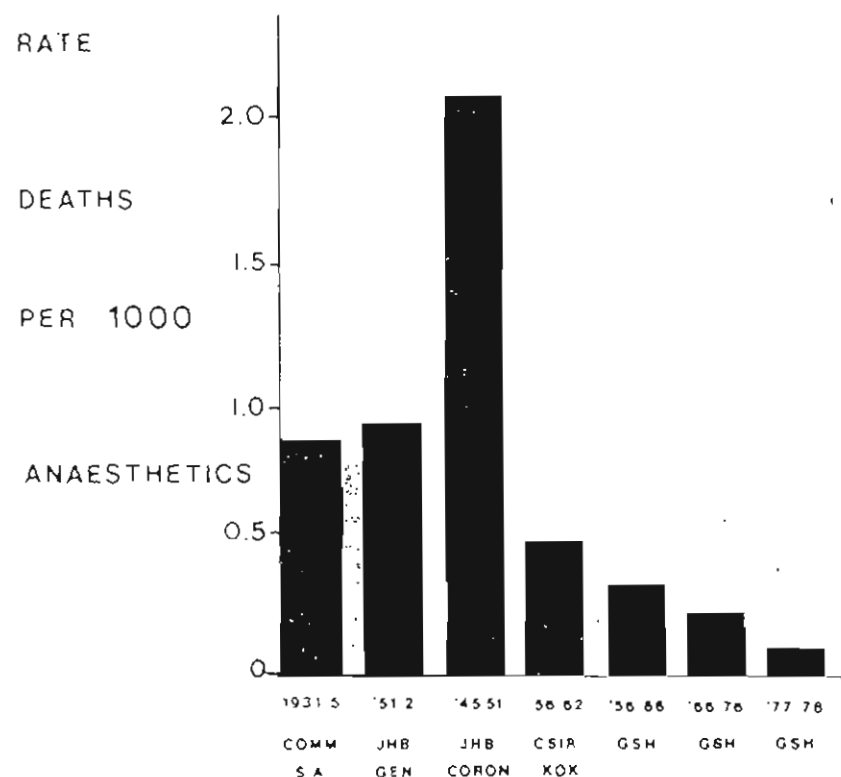


FIRST SURVEY OF ANAESTHETIC MORTALITY AT GROOTE SCHUUR HOSPITAL.

Fig 4

DEATH DUE TO ANAESTHESIA

SOUTH AFRICA



INCIDENCE OF DEATH ATTRIBUTABLE TO ANAESTHESIA IN SOUTH AFRICA.

Fig 5

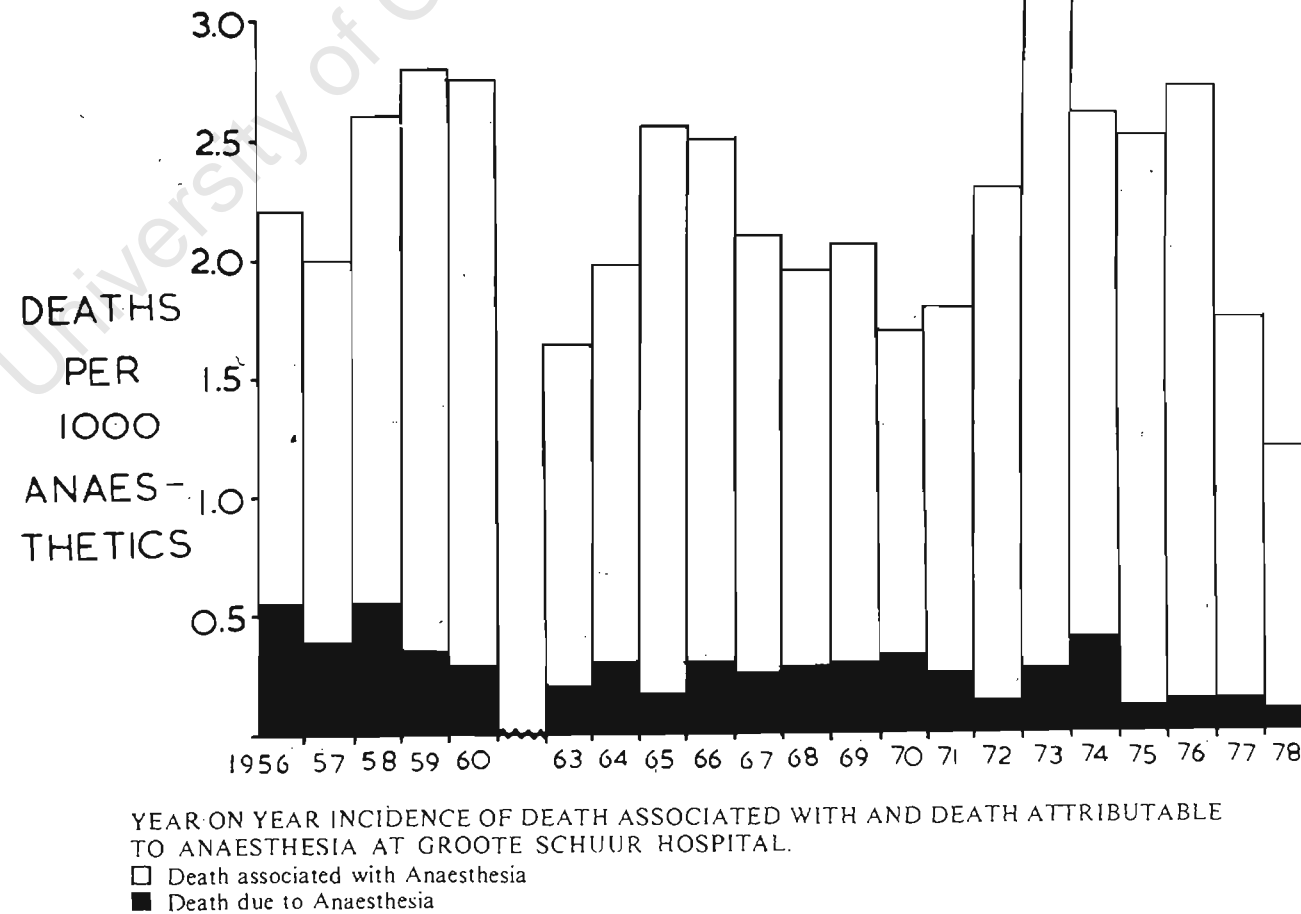


Fig 6

Critical care medicine

This increase in safety of anaesthesia is attributable not only to the expertise in basic life support technology, with its precise vital function monitoring and careful control of respiratory and circulatory homeostasis, that have become accepted as primary anaesthetic clinical skills in the operating room, but also to the extension of these skills ever further into the immediate peri-operative period. The anaesthetist's operating room expertise has spilled over into the recovery ward and thereafter, married to intensive high grade specialist nursing care, extended to and initiated the 'Intensive Care Unit'. If such treatment was germane to the survival of the critically ill during and after surgery, why not simply the critically ill unsubjected to surgery? And so multi-disciplinary Critical Care Medicine was born. The increasing sophistication of techniques and equipment involved has required that physicians and nurses who work in critical care units become more and more specialised and has resulted in the development in the larger hospitals of a multitude of special care areas including those devoted to short term post-operative recovery, trauma and resuscitation, coronary care, cardiac surgical intensive care, acute respiratory intensive care, surgical intensive care and Renal Dialysis and Transplant Units.

As trauma continues to be a leading cause of death and disability in all age groups and as more and more individuals live long enough to develop cardiac, pulmonary and other organ failure, hospitals feel compelled to enlarge their critical care facilities to meet the needs. The problem is that this type of medicine makes excessive demands on resources, both the human (the physician and in particular, the nurses involved) and the financial. Its cost effectiveness must constantly be examined, though as always, cost effectiveness in terms of human life, is virtually impossible to evaluate.

What is of concern to me is the relationship of anaesthetics as a discipline with this vigorous child it has fathered, Critical Care Medicine is rapidly becoming recognised in many places as an independent entity. Though in the United Kingdom and America there are no plans yet for the institution of a separate qualification in Intensive Care, the Australian Faculty of Anaesthetists has already grasped the nettle and introduced in addition to its Anaesthetic Fellowship, a second Fellowship diploma devoted to Intensive Care Medicine. In France, Intensive Care Medicine is recognised as a new and separate discipline.

International congresses and new medical journals are devoted to Critical Care Medicine and for many years the nursing profession has regarded 'Intensive Care Nursing' as a separate post-graduate entity. In South Africa two of our medical schools, those of Bloemfontein and Pretoria, have established departments with Chairs in Intensive Care Medicine and the Faculty of Anaesthetists of the College of Medicine of South Africa is campaigning for the institution of a Diploma in Critical Care (with a multi-disciplinary approach) as an additional qualification, for which as yet, the South African Medical and Dental Council have not evinced any enthusiasm²⁰.

In practice, anaesthetists involved in the field become involved full time. They become that paradox, the anaesthetist who administers no anaesthetics. It is my concern that in this process, the services of those who are often the best clinicians are lost to Anaesthesia which thereby becomes the poorer. For this reason, while I totally support not just anaesthetist involvement in Critical Care Medicine at a clinical but also at an administrative level, I myself do not support its complete separation from anaesthetics. Such departments in a hospital should in my view, continue to be closely associated or even integrated with the parent Anaesthetic department and the clinicians involved should maintain some clinical anaesthetic commitment. This in turn, may allow a greater number of anaesthetists becoming actively involved in Intensive Care, so widening their clinical skills to the good of their patients. I also believe that where possible in new hospital designs, contiguous placement of the various types of intensive care unit would make for better utilisation of nursing and other resources.

.....Four hundred and fifty doctors are currently registered by the South African Medical and Dental Council as Specialist Anaesthetists²¹. The practice of anaesthesia is now seen by students and medical practitioners as an interesting and rewarding career in practice. Recruitment into the specialty is better than it has ever been and many of the country's teaching departments have waiting lists of applicants for posts. For each of the last four years, my own department alone has had, on average, 25 applicants for the three to four potential vacancies at the end of every year. We could train more if we had more posts in our establishment.

.....A survey undertaken by C S Jones, ^{p 53} one time Head of our Department, a little over 20 years ago and now doubtless dated but still the only survey of its sort, showed that more than two-thirds of the anaesthetics administered in the country as a whole were undertaken by general practitioners. And of rural practitioners, more than four-fifths were constrained to administer anaesthetics in their practice. It is up to the medical curriculum planners to see that undergraduates, and in particular interns, have adequate exposure to clinical anaesthetics on a continuous basis, while the anaesthetic departments themselves, bearing in mind the anaesthetic responsibility of the rural practitioner, should place more emphasis on the practical teaching of simple basic techniques and monitoring, with particular emphasis on techniques of local anaesthesia. In addition, this should be reinforced by university teaching departments and bodies such as the South African Society of Anaesthetists providing adequate refresher and update 'continuing-medical-education' type courses for rural general practitioners and by the support and encouragement of regular visits of specialists to country areas. Perhaps the extension of the system whereby teaching hospitals accept some responsibility for teaching in and supervision of designated satellite hospitals may provide the most practical solution to the problem.

Ladies and Gentlemen, whatever the solution we adopt to ensure the ready availability of anaesthetic services to the country as a whole, I believe that it is the right of every man to expect that when the day comes that he need undergo a surgical operation for cure of disease, and therefore an anaesthetic, he may so do, confident of total pain relief in safety. He will wake up.

THE NEW GROOTE SCHUUR HOSPITAL

Plans were in progress for the redevelopment of the Groote Schuur Hospital Complex and the planning committee undertook an analysis and submitted commentary on the Consortium's stage D proposals. By 1981 there was much disruption of the road system leading to the hospital, extensive demolition of the housing opposite the hospital was taking place and the staff faced great challenges in the decanting of departments in prefabricated buildings situated in this area. The cemetery abutting the Main Road had to be evacuated and all bodily remains were exhumed and placed in an ossuary. In the meantime, alterations in the main building were also in progress. The need for new development was foreseen as a



Project 53: NEW MAIN BUILDING – Architects Model
(By courtesy of Mr C Turner-Smith, New Groote Schuur Hospital
Architectural Consortium)

University of Cape Town

result of an increase in population of the City of Cape Town by 75% in the two decades between 1961 and 1981²².

On 9 August 1982 the first meeting of the Joint Staff of Groote Schuur Hospital and the Consortium of Architects of the new GSH took place. Plans of the hospital were shown in the E Floor Lecture theatre. A high point in 1982 was the acceptance of the tender submitted by the LTA/Comiat joint venture for the construction of this new hospital. The project was to be completed in 6 years. The main new hospital building, housing 1400 beds would consist of 5 wings with a maximum height of seven user floors and a maximum length of 250m linked by primary circulation cores and corridors. A five floor parking structure north of the new building was to be built. The existing hospital and out patient block were to be linked and updated. The contract was believed to be the largest single building contract awarded in the Cape Province. The initial estimate was for R134 million but this escalated to about R180 million.

The first sod for the new hospital was turned over on the site by the Chief Medical Superintendent, Dr Hanna-Reeve Sanders on 10 January 1983. This was the start of a major project which had been in planning for the past ten years. For the Department of Anaesthesia, planning had begun with Professor Bull and Julien Biebuyck from 1975 but this task was ultimately taken over by Dr Ozinsky and Professor Harrison. As for the physical planning of the Department, the architects had met most of the requirements of the Department. The end result was a Department close to the theatre complex but not adjacent. It was north facing, sunny and had a magnificent view. There were several offices for the professors and consultants; a large registrar room for computers; a large tearoom cum lecture room; a seminar room, a fair sized library; registrar rest rooms for those on call; ablution facilities; secretarial offices and a main reception office of suitable size. The two roomy corridors were used for housing the cabinets of the anaesthetic museum. The laboratory facility was unfortunately small and inadequate. Research continued to be conducted in the laboratory in the HD&OT building until 1995 when it was relocated to the original site in the basement of the Physiology Building, about 0.75 kilometers away. It was hoped that the project would be completed in six years but this was not to be. One must bear in mind that the cost of the original

planned project exceeded initial estimates and therefore the hospital was reduced in bulk by almost 25% when completed.

A REVIEW OF DEPARTMENTAL RESEARCH

Much of the information presented here has been gleaned from presentations, lectures and publications by Professor Harrison, which he made available to the author. Personal interviews with Professor Harrison over a period have enhanced the content.

As mentioned in an earlier chapter, the signing of the Joint Agreement between the UCT and the Cape Provincial Administration in December 1951 proved to be a seminal event in the development of the Medical Faculty, and in particular, in the legitimising of research as part of the duties of the clinical staff.

In the agreement such duties were clearly categorised as including :

- a) Patient service
- b) Teaching
- c) Research - ' To undertake such medical research as can be reasonably combined with other services.'
cf Joint Agreement.

A corollary of the above was that the size of the departmental staffing establishment should be commensurate with these commitments. Though assessment of the latter was often to be the subject (cause) of disagreement between the academics and the bureaucrats, over the years, staffing levels did increase advantageously, and allowed growth for the refinement of clinical anaesthetic techniques to meet not only the increasingly sophisticated elements of the developing surgical superspecialties - such as neurosurgery, paediatrics, major vascular surgery, cardio-pulmonary by-pass and transplantation surgery – but also the development of patient care services such as Intensive Care (Critical Care Medicine) and Pain Therapy which were destined later to be recognised superspecialties in their own right.

A further corollary of the Joint Agreement's recognition of a commitment to research was departmental access to research funding from University sources, sparse though these were initially, as well as a claim to dedicated laboratory space at the Medical School.

The coincidence of the establishment of the first Chair in Anaesthesia (now Anaesthesiology) (1965) with the Centenary of the founding of De Beer's Consolidated Mines and the Anglo American Corporation prompted the establishment of the *Anglo American De Beer's Anaesthetic Research Fund*. This major endowment of R80,000-00 gave the UCT Department of Anaesthesia independent control of research funds, sufficient for its needs for years to come into the future.

This position was later to be greatly improved by another significant endowment of R40,000-00 from local philanthropist Mr Joseph Stone - *The Joseph Stone Anaesthetic Research Fund*. To this day a very large part of the research activity of the Anaesthesia Department has been funded by these two entities which are still extant. Other research funding has been forthcoming from the CSIR (Council for Scientific and Industrial Research – 1945) and thereafter the MRC (Medical Research Council) following its establishment in 1969.

However, the 1990's saw a progressive reduction in MRC budgets as well as a redirection of their research priorities towards Community Health and related properties. This brought to the fore an increasingly important role for academically funded 'Contract Research' ie research applied to the commercial interests of the funding company, related mostly to drug trials (usually phase 3) . The publications emanating from this research report a half century of investigation of increasing complexity and sophistication as the range of research techniques available was advanced. At one extreme – the early ones – they demonstrate that early research which can contribute significantly to knowledge can be performed with the minimum of technical equipment and resources. At the other extreme, they illustrate how the advances in vital function monitoring and the physico-chemical technology now applied to biological research, have rendered the collaboration of other medical and paramedical scientists in clinical research highly desirable, often indispensable.

In addition, many of these publications are a tribute to the high degree of co-operative interdisciplinary collaboration that has characterised research in this Medical Faculty. From a modest

ANNUAL NUMBER OF PUBLICATIONS

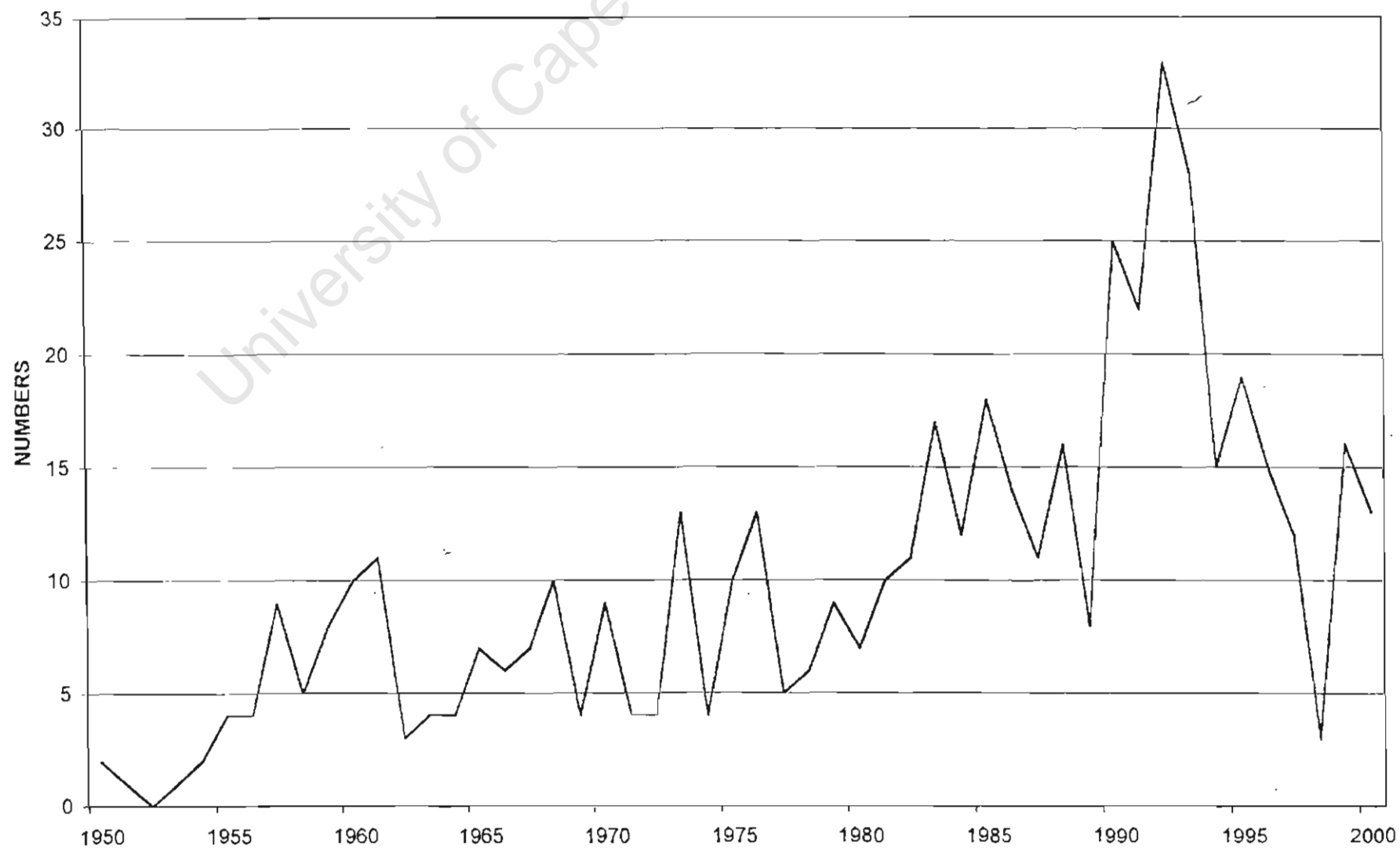


Fig 7

beginning of 6 papers between 1950 – 54, the number of research publications per 5 year period increased steadily to 78, *pari passu* with the continued growth in staff establishment.

In the period 1985 – 89, despite the progressive reduction in staff establishment which followed thereafter, as a result of a severe reduction in the Health budget, the growth in the volume of publications continued, peaking 199 between 1990 – 2000, in all, a 50 year total of over 500 (including chapters in books), an achievement indeed !

Many of these publications were essentially ‘one off’ reports of experience with new clinical techniques or drugs following their introduction into practice or complications arising therefrom. Because of space constraints other than their listing in the bibliographical index, these merit no further comment here. However, some of the problems of clinical practice motivated research and publication that were ongoing, resulting often in significant contributions to knowledge, and which had an impact on clinical practice. Brief comment on some of these follows.

DEPARTMENTAL RESEARCH

OUTPUT, REVIEW AND ASSESSMENT OF THE CONTRIBUTION TO CLINICAL ANAESTHETIC PRACTICE

A BROAD CLASSIFICATION

1. ***Epidemiology of Anaesthetic Associated Deaths (Mortality)***
This was the longest ongoing project and the largest descriptive epidemiological study of the subject of AA Mortality conducted in a single institution under the same individual direction yet reported.
 - the study monitors the *Safety of Clinical Anaesthesia* for the patient.
 - it also *Audits the Departmental Performance* and thereby acts as *Quality Assurance*.
p112a, p114, p154, p159, p184, p286, p315, p316, p447**Publications p112a earned the Hamilton-Maynard Medal award.**
2. ***Halothane associated research :***
This was the volatile anaesthetic agent that revolutionised anaesthetic practice in the world.
 - a) The Halothane story and its introduction into practice
Professor Bull was the first to introduce halothane to South Africa.

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-the clinical use of halothane p49,p58, p59, and as a standard anaesthetic for Cardiopulmonary Bypass Surgery, first experimentally in dogs, later in humans. This was possibly a world first p 56, p 60

b) Halothane Hepatitis and related Topics :

- i. Hepatic drug metabolism of halothane and its congeners.
p125a (this was the first study utilizing isolated perfused rat liver to do so)
p144, p146, p168, p169, p171, p179, p188, p192, p199, p210, p223,
p 281, p292, p295, p416
Studies p146, p168, p171, p179 (validated by other international workers)
resulted in the withdrawal of Fluroxene.
- ii. Hepatic Coma Treatment & Brain Metabolism
p117, p118, p135, p170, p183, p188, p190, p191
- iii. Other Drug Metabolism studies
p 192, p199, p216, p 223, p 345, p 370, p 396
cocaine, lidocaine, bupivacaine.
p 372, p 377, p 378, p379, p 395, p 396, p 397, p 398, p 404, p 405, p 415,
p417, p 419, p 422, p 431, p 449. (Dr B Mets earned a PhD for this research)
- iv. Anaesthesia and Liver Disease
p 96, p130, p150, p 249

c) Halothane -

Malignant Hyperthermia : p116, p143, p145, p291, p353

PHARMACOGENETIC STUDIES :

- Research contributions to - MH and a method of its prediction
p120a (subject of Current Contents Citation Classic)
- identification of a *Pig Model*. A world first.
p119, p137
 - elucidation of the underlying biochemical events
p124a, (Gerald A Gronert, in a chapter in 'Malignant Hyperthermia eds. Morio M, Kikuchi H, Yuge O. 1996 Springer ISBN 4-431-70171-0, states "The biochemical changes in this classic paper are regarded as a benchmark study) p283
 - Dantrolene as a definitive treatment. A world first
p 158a (subject of Citation Classic Commentary),
p177, p205, p212
The mortality of MH, of about 70-80% in its first decade of description has been reduced to virtually nil today)
 - drug screening etc
p147, p196, p197, p198, p293, p308a, p308b, p462
other
p141, p142
See book chapter Anaesthesia in Pharmacogenetic states. 1991

PHARMACOKINETIC STUDIES :

- Dantrolene
p294
- 3. **Porphyria** – (a) PHARMACOGENETIC STUDIES :
Research contribution to - drug screening & safe anaesthesia
p 195, p253, p343 (**This reported the first ever prospective controlled clinical & biochemical drug trial conducted in a group of porphyric individuals**) p403, p492
(b) PHARMACOKINETIC STUDIES :
p343, p394
- 4. **Organ Transplantation** :
 - Cardiac transplantation. **A world first** p 108, p 266
 - Book Chapter 1984. Ozinsky J, Van Heerden J. Anaesthesia and intra-operative care, including cardiopulmonary bypass.
 -
 - Liver transplantation p 129
 - adult p 356, p 383, p 386b, p 485
 - paediatric p 495
 -
 - Renal transplantation p 129
 - Other p 117, p118, p 135
- 5. **Cardiac anaesthesia** :
 - adult p 70, p 81, p 361, p 414, p 420, p 497
 - paediatric p 140, p 152, p 160, p 241, p 242, p 243, p 245, p 325
 -
- 6. **Blood transfusion & Fluid Therapy** :
 - (a) Pretransfusion warming of blood **Taurus Blood Warmer**
p 89, p 94, p 102, p 103, p 365
 - (b) Fluid therapy, haemodilution and hypercoagulability
p 128, p 175, p 180, p 366, p 384, p 453a, p 453b, p 454, p 455, p 457, p466, p 470, p 473, p 479, p 484, p 496
 - (c) Other
p 99, p 165, p 167, p 186, p 374, p 475
- 7. **Intensive Care & Respiratory related research** :
 - (a) **Tetanus neonatorum**
The treatment of tetanus neonatorum by mechanical ventilation was **a world first**. p55, p69, p156
Tetanus
p 228, p 251, p 257, p 374
 - (b) Techniques & equipment.
p 48, p 72, p 78, p 86, p 101, p 153, p 185, p 193, p 211, p 218, p 278, p279, p 299, p 303, p 329, p 330, p 336, p 417, p 489
 - (c) Antibiotic trials
p 194, p 274, p 301, p 304, p 314
 - (d) Nosocomial infections / other
p 234, p 247, p 250, p 275, p 307, p 364, p 381, p 387, p 388, p 389, p408, p 440, p 463

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- (e) Poisoning - Paraquat
p 178, p 189, p 235, p 239, p 261, p 263, p 285.
- Other
p 38, p 226, p 255, p 280, p 282, p 290.
 - (f) Drowning
p 221, p 222, p 262, p 277
 - (g) Shock
p 101, p 104, p 121a, p 127, p 128
 - (h) Trauma
p 172, p 173, p 213, p 256, p 260, p 324, p 342, p 382,
 - (i) Other
p 202, p 209, p 225, p 232, p 240, p 244, p 264, p 265, p 305, p 312, p 328,
p 375, p 388, p 421, p 424, p 433, p 441, p 443, p 444, p 464
8. ***Obstetric anaesthesia :***
- (a) Foetal oxygenation
p 115 (**Registrar Prize at 1968 AAGBI Meeting**), p 148
 - (b) Caesarean section
p 32, p 113, p 238, p 349,
 - (c) Other
p 91, p 181, p 217, p 252, p 471, p 472, p 334
9. ***Magnesium related research :***
- Pheochromocytoma
p 339
 - Other
p 296, p 334, p 335, p 341, p 344, p 367, p 436, p 459, p 460, p 461, p 471,
p 472, p 480, p 483
- (Most of James' magnesium research was in the category of 'world firsts'. First to study the haemodynamic effects of magnesium in an intact, ventilated animal model. First to suggest the use of magnesium to control the haemodynamic disturbances of tetanus, first to suggest the use of magnesium in the anaesthetic management of phaeochromocytoma and also the first to suggest the use of magnesium to control intubation responses in general and in preeclampsia in particular)
10. ***Clinical anaesthesia :***
- (a) ***Anaesthetic techniques***
p 1, p 5, p 9, p 16, p 18, p 46, p 50, p 62, p 88, p 98, p 132, p 139,
p 207, p 219, p 224, p 254, p 338, p 351, p 373, p 380, p 385, p 391, p 399,
p 414,
 - (b) ***Drugs in anaesthesia***
p 2, p 14 (**Dr RM Muir was the first to introduce cyclopropane to London & South Africa**), p 19, p 22, p 24, p 25, p 34, p 39, p 51, p 52, p 67, p 71,
p 79, p 80, p 93, p 97, p 104, p 105, p 111, p 121a, p 123, p 149, p 161,
p 162, p 187, p 227, p 229, p 230, p 231, p 269, p 272, p 317, p 319, p 322,
p 323, p 327, p 348, p 380, p 385, p 394, p 399, p 400, p 401, p 405, p 411,
p 414, p 416, p 440, p 450, p 459, p 477, p 478, p 481, p 488
 - case reports p 43

- pharmacokinetics p 163, p 236, p 345, p 346, p 393, p 417, p 431
- drug metabolism p 200, p 215, p 216, p 236, p 370, p 371, p 377

(c) *Circuits, equipment and faults*

p 3, p 7, p 8, p 28 (First direct objective observation of performance of the Magill attachment)

p 37, p 47, p 57, p 77, p 95, p 107, p 182, p 234b, p 368, p 373, p 391, p 425, p 427, p 434, p 443, p 456

(d) *Paediatric anaesthesia*

p 26, p 36, p 49, p 58, p 59, p 65, p 83, p 100, p 107, p 175, p 180, p 201, p 231, p 289, p 400, p 476, p 482, p 487, p 491.

(e) *Case Reports*

p 16, p 198, p 206, p 214, p 220, p 237, p 248, p 268, p 311, p 347, p 352, p 420, p 434, p 435, p 443, p 453a, p 453b, p 459, p 460.

(f) *Pain Medicine - Analgesia / Pain Control :*

p 73, p 75, p 203, p 208, p 313, p 331, p 332, p 342, p 354, p 428, p 448, p 458, p 487, p 491

(g) *Anaesthesia & Radiotherapy:*

p 84, p 271, p 276

11. *Teaching in anaesthesia*

- Undergraduate p 17, p 54, p 63
- Other p 474

12. *The economics of anaesthesia*

- costing p 40, p 270, p 441
- other p 53, p 442

13. *Hyperalimentation :*

p 164, p 165, p 166, p 167, p 233, p 374

14. *Anaesthetic History*

p 45, p 110, p 287, p 409a, p 410, p 409b, p 353, Parbhoo NP - Five Decades.
Harrison GG. Book Chapter . The Discovery of MH in Pigs. 1993.
James MF. Inaugural lecture.

THE EPIDEMIOLOGY OF DEATH ATTRIBUTABLE

Much of this topic has already been covered in Professor Harrison's Inaugural lecture.

Over the period 1956-1987 the surgery for which anaesthetic service was provided increased in volume from 16000 – 40000 operations annually. These included the whole spectrum of modern surgical practice from the simplest to the most complex. The years of this survey saw the birth and development of cardiopulmonary bypass surgery, major vascular surgery, paediatric surgery and organ transplantation. It

also witnessed the increase to epidemic proportions of major trauma requiring management including the dragons teeth harvest of multiple injuries spawned by motor vehicle accidents and internecine strife.

When finally concluded, this surveillance study had acquired data from a population of three quarters of a million anaesthetics and covered a time span of thirty years. It had become the longest running and largest descriptive epidemiological study of Anaesthetic Associated Mortality conducted in a single academic institution under the same individual direction yet reported. In a field of interest in which lack of uniformity – in taxonomy, criteria for case inclusion and assessment, as well as peri-operative time period studied – invalidates any precise ‘between study’ comparisons, the characteristics of this study do serve to validate ‘within study’ inferences and conclusions.

During its course, major analyses of the data captured by this ongoing study were published every ten years ^{p 112 a, p 114, p 154, p 286, p 315, p 316, p 447} – the first earning the award of the Hamilton Maynard Medal of the Medical Association of South Africa ^{p 112 a}. All enjoyed wide international recognition as providing authoritative estimates of the incidence and commoner causes of Death Attributable to Anaesthesia. Subject to journal editorial comment ^{p 112 b, p 112 c} and republication in the Survey of Anesthesiology ^{p 112 e} and some others ^{p 112 d, p 112 f}, data and conclusions from these publications have been widely cited internationally by authors in this field. Broad reviews of this topic are provided in the book chapter (1985), and aspects of classification and autopsy in publication ^{p 114}.

Considerable changes occurred in the clinical practice of anaesthesia during the thirty year period of this study – changes consequent on advances in knowledge, the development of a more versatile drug armamentarium, improved professional training standards and, in particular, the advent and ready availability of sophisticated monitors of vital functions, including biochemical parameters. The enhancement of the safety of anaesthesia for the patient brought about by these improvements in practice is reflected in the publications presented by the six fold decrease in the incidence of Death Attributable to Anaesthesia reported over the period of this study. This incidence today is less than one death per ten thousand anaesthetics – a ‘rare event’ level that has important logistic implications for the statistical design

of future surveillance studies. The need for the latter remains for, as improvements in anaesthetic techniques and safety permit surgical advance, this itself presents an ever greater challenge to the anaesthetist in the type and physical status of patient presented for anaesthesia for operations of increasing scope and complexity.

HALOTHANE

INTRODUCTION

The introduction of halothane into clinical practice provides one of the great landmarks in the development of anaesthesia. In an attempt to find an agent that was basically as 'safe' as ether yet non inflammable, Suckling examined a number of fluorinated hydrocarbons. This group was known to be highly stable, volatile and non-inflammable (under clinical conditions).

In these compounds the fluorine atoms have a strong chemical bond with the carbon atoms. The result is that the fluorine atom is quite unreactive, particularly when the compound contains a CF_2 or CF_3 grouping. Such agents would be unlikely to interfere with body metabolism because of their high chemical stability, and therefore would tend to have a low toxicity.

Robbins (1946)²³ in a study of many of the fluorinated hydrocarbons found that those with low boiling points produced convulsive movements; that the potency increased as the boiling point rose, yet recovery time became more prolonged, and that substitution of a bromine atom in the fluorohydrocarbon not only increased potency but also appeared to improve the safety margin.

Introduced into clinical practice in 1956 by Mancunian Michael Johnstone²⁴, halothane was soon to replace in usage all the inhalational agents that preceeded it. Though decades later its use was challenged by progressively improved congeners, it has remained at century's end, the most widely used volatile anaesthetic in the world.²⁵ It is not surprising therefore that halothane has been the subject of more research in this Department than any other single topic. Most has been directed at the two most serious complications associated with halothane anaesthesia, Post Halothane Hepatitis and Malignant Hyperthermia.

However, some research in the early years after its introduction, made quite substantial contributions to clinical practice. Halothane's introduction into clinical practice coincided fairly closely with the worldwide development of Open Heart Surgery with cardio-pulmonary bypass. At this time a troublesome problem was the smooth maintenance of anaesthesia during the phase of cardio-pulmonary bypass (during which there was no ventilation). The concept that flexibly controllable anaesthesia during this phase could be maintained by administration of halothane via the oxygen input of the oxygenator, was first developed in this Department, *in vivo* in dogs ^{p 56} and thereafter transferred to human practice ^{p 60}. rapidly became a world standard.

The advent of halothane coincided also with the introduction of air conditioning into operating theatre design. This coincidence of the introduction of a 'cooler controllable operating room air environment' with the use of a volatile agent characterised by vasodilatory properties, brought with it the problem of the inadvertent induction of hypothermia – especially in anaesthetised infants. This motivated the first study, involving halothane, of ' Temperature changes in Children during Anaesthesia' ^{p 58} (1960) investigated at the Red Cross War Memorial Hospital, not long after it opened. This showed that the temperature fall related to that of the environment, was greater with halothane than other volatile anaesthetics in use at that time, was proportional to the ratio of surface area / weight ie. the smaller the child, the greater the fall and the extent of superficial exposure. This motivated the use of temperature conservation and support of neonates during operation eg warm gamgee pads, head stockinette, infra red lamps, warming blankets, warmed cleaning solutions, warm i.v fluids and prevention of unnecessary exposure of the child.

With halothane anaesthesia in an air conditioned environment, body temperature was shown to fall even in children who were pyrexial preanaesthetic, sometimes extremely so.

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HALOTHANE HEPATITIS

ANAESTHESIA & LIVER DISEASE

Halothane had not been long in practice, when, spearheaded by a letter to the *Lancet* from JDS Barton of Pietermaritzburg (1959)²⁶ reporting cases of jaundice with fulminant liver failure and necrosis following anaesthesia with halothane, cast doubt on the safety of what otherwise appeared to be an ideal volatile anaesthetic. Prior to 1963 there were only a handful of cases giving a possible link between halothane and toxic hepatitis (Burnap et al 1958²⁷; Virtue and Payne 1958²⁸; Barton 1959; Vourc'h et al 1960²⁹). In 1963, 2 reports appeared in the *New England Journal of Medicine* which attracted special attention. The first entitled "Liver necrosis after halothane anaesthesia"³⁰ reviewed 2 cases with a fatal outcome. The second report reported the association between recurrent fever and hepatic dysfunction after repeated use of halothane anaesthesia³¹.

The need for the Department to audit their own experience of this problem motivated a one year epidemiological survey of post operative jaundice^{p 96} (1966). In line with other more contemporaneous and later studies³² which showed that the entity which came to be known as Post Halothane Hepatitis was exceedingly rare and unpredictable, their survey revealed *no* cases of post operative jaundice which could be attributed to halothane.

From these surveys^{33, 34} it was soon apparent that repeat exposure to halothane was a factor in the genesis of this syndrome. In order to isolate the effects of halothane alone from the many other potential causes of liver dysfunction associated with anaesthesia and surgery, this aspect of the problem was studied in an isolated perfused rat liver preparation, the first study documented so to do.^{p 125 a} Indeed, this study showed that the repeat exposure to halothane did cause demonstrable depression of liver function that was not apparent after single exposure to halothane nor after single or multiple exposures to ether. Several years later further studies^{p 150} demonstrated other hepatic metabolic effects specific to repeat halothane exposure. The former^{p 125 a} was the first of many research publications which, motivated by the conundrum of Post Halothane Hepatitis, expanded to include the effects of halothane on the liver, hepatic drug metabolism^p

188, p 223, p 267, p 281, p 292, p 295, p 462 , the problems of anaesthesia for patients suffering liver disease ^{p 249} and in particular for Liver Transplantation ^{p 356, p 378, p 485, p 495}.

Of particular importance to the latter procedure was an investigation of the effects of hypoxic injury of the donor liver as inferred from the lignocaine extraction ratio in isolated perfused pig liver. This investigation earned the award of a PhD (Dr Berend Mets 1992) and was the subject of publication ^{p 415}.

The direction of research of the Hepatic Drug Metabolism was motivated by the early chance finding that fluroxene anaesthesia in the presence of hepatic microsomal enzyme induction, caused acute massive necrosis of the liver in rats. ^{p 146, p 168, p 171, p 179}

Note: Fluroxene (Trifluoroethyl Vinyl Ether – ‘Fluoromar’) was first prepared by Shukys in 1951 and two years later Krantz ³⁵ and his co-workers in 1953 reported on the anaesthetic properties of this agent. It was a clear, colourless, volatile liquid with a mild ether-like odour and relatively stable even in the presence of soda lime. It was inflammable in oxygen and nitrous oxide/oxygen mixtures when the concentration rose to above 4%. Sadove et al ³⁶ in 1957 and Brechner et al ³⁷ in 1958 reported no direct evidence of either hepatic or renal damage after fluroxene anaesthesia.

This ^{p 146} and the subsequent investigations ^{p 168, p 171, p 179, p 188} demonstrated that the liver damage was engendered by the generation of highly toxic (probably free radical) intermediates by the hepatic cytochrome P-450 degradation of fluroxene (validated internationally by other workers ³⁸) and resulted in the withdrawal of the drug from clinical practice after 14 years of apparently safe usage.

Methoxyflurane (Penthrane) is a halogen -substituted methyl ethyl ether. A clear colourless liquid with a fruity odour and a high blood solubility, non-flammable and non-explosive. It also has a high solubility with rubber with the result that about one third of the output of the vaporiser is lost to rubber and that which reaches the alveoli is rapidly absorbed into the circulation. It was first used in clinical anaesthesia by Artusio and Van Poznak in 1960 ³⁹. It was found that a significant amount is metabolised and the metabolites including carbon dioxide, fluoride ion, dichloroacetic acid and methoxyfluoroacetic acid, are excreted in the urine over a period of up to 12 days. These could be responsible for high output renal failure. The nephrotoxicity is mainly due to the inorganic fluoride, the result of metabolism. Induction

of hepatic enzymes can speed this metabolism. Work done in the Research Laboratory of the Department involved the above p 192, p 199, p 210, p 223.

HEPATIC DRUG METABOLISM

Other studies of hepatic drug metabolism undertaken by a different team concerned that of Cocaine⁴⁰ – a project that was motivated by the clinical difficulties posed by the provision of anaesthesia for substance abusers (drug addicts). These results were reported in publications p 404, p 405.

Though these studies failed to elucidate the pathogenesis of Post Halothane Hepatitis – now known to be based on an immunological response of sensitised liver cells to a hapten formed from a non toxic intermediate species of the cytochrome P-450 metabolism of halothane and membrane macromolecules – they contributed to the detail of the microsomal biotransformation of the volatile anaesthetics and related xenobiotics.

HEPATIC COMA

BRAIN CHEMISTRY

Also flowing from the Halothane Hepatitis interest was research into the cerebral mechanisms of Hepatic Coma and encephalopathy. The fundamental bench research of this program relied on the use of the Rat Brain Blower,^{p157} an apparatus which made possible the obtaining *in vivo* of instantly frozen specimens of rat brain for the study of the biochemical reaction underlying induced hepatic coma.

This research program which produced a steady stream of publications p 183, p 190 ceased when its director Julien F Biebuyck left the UCT Department to take up a position as Inaugural Director and Professor of Anesthesiology at the Milton S Hershey Medical School of Pennsylvania State University College of Medicine in 1977.

While in the field of research into the management of hepatic coma, members of the Department of Anaesthesia were involved in the clinical development of a radical method of coma treatment p117, p118

This involved the establishment of cross circulation between the comatose patient and an anaesthetised baboon for periods of up to 6 hours, so providing an *in vivo* process of 'liver dialysis'. The threat of exposure of the patient to endemic baboon viruses led to the replacement of the baboon by isolated perfused pig liver for the same purpose thereafter. The development of acute Thrombocytopaenia and Disseminated Intravascular Coagulopathy led to the abandonment of what initially appeared to be promising therapy.

The last publications in the period surveyed in this field of research have reported the first extensive results of the South African ongoing experience of Human Liver transplantation ^{p 378, p 383, p 485, p 495}

The investigations of the hepatic cytochrome P450 metabolism of anaesthetic drugs and related xenobiotics resulted in a long and fruitful collaboration with the Department of Medical Biochemistry as represented by Professor KM Ivanetich ^{p 171}. This research, in many cases, featured as the PhD dissertation topics of Medical Biochemistry postgraduate students, resulting in the award of no fewer than 5 PhD's.

On the basis of the above information, and noting the fact that none of the above recipients were either medically qualified doctors or anaesthesiologists in training, we need to digress and clarify the role of these researchers.

As mentioned earlier by Professor Bull, after his return from the WHO Travelling Fellowship in 1964, he had motivated the necessity and advantage of in-theatre monitoring of Acid-Base balance and persuaded the hospital to acquire a Micro-Astrup machine for this purpose. Initially when the machine arrived it was run by Professor Bull himself, and soon it was in great demand. Following this, the Department in 1967 was granted a Laboratory Technician post by the Cape Provincial Administration to perform 'real-time' acid-base values for patients undergoing cardiac surgery, at first in a small laboratory space adjoining the B2 theatres. The first such technician was Ms Frumilla North and she was also involved in respiratory patients in the various wards. As a result of the increase in the amount of cardiac surgery, expansion in various surgical departments and the participation in intensive care and respiratory

therapy, an expansion in the laboratory services became necessary. In 1968 a second post of Laboratory Technician was added by the CPA.

A few years later, the Chemical Pathology Department took over the burden of 'real-time' biochemistry service for cardiac and other surgery, and the Department managed to keep these 2 posts. One of these was later seconded to the Respiratory Intensive Care Unit. This left the Department with 1 post which was CPA funded. In this post Professor Harrison employed Science Honours graduates – either Microbiology or Biochemistry. While satisfying a 'patient service' for measuring patient drug levels and the like, it was ensured that they provided a Research Laboratory Service. They were asked to register for PhD's at UCT and in a collaborative scheme with Kathy Ivanetich who was originally in the Department of Physiology and later associate professor in Medical Biochemistry (1982), arranged for them to work under her tutelage, guidance and supervision on Anaesthetic Hepatic Drug Metabolism research. These research projects became the topics for the PhD theses. Professor Harrison served as joint supervisor providing the 'clinical relevance' aspect.

Regrettably this technician's post, which had 'unofficially' produced this worthwhile research output, was abolished.

MEDICAL TECHNOLOGISTS

Note: Some of these technicians were against the GSH Technologist post and others were Research Grant (Anglo-American, De Beers etc) funded.

1964	Mrs Frumilla North		
1968	Ms A Munro		
1970	Mrs Caren Verberg		
1972	Ms Brenda Schkolne (Ger)		
1973	Mr Philip R Abraham		
1974	Mrs Iona Zietsman		
1976	Ms Jenny Thomas (Dr Jenny Thomas-Porter)		
	Ms Jean Marsh	PhD(UCT)	1977
	Ms Anka Mans	PhD(UCT)	1979
	Ms Veronica Manca	PhD(UCT)	1980
	Ms Melanie Ziman	PhD(UCT)	1983
	Mr Alfred Thumser	PhD(UCT)	1990
1980 - 1983	Mrs Margot Pinshaw (Hurwitz)		
1989	Mrs Pat Ellis		
1990	Mrs Gayle Neill		

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Sadly in all this time, only 1 anaesthesiologist accepted the challenge of earning a PhD. He was Dr Berend Mets who graduated PhD(UCT) in 1992 with his thesis 'Lignocaine extraction ratio and clearance as an indication of hepatic injury – a study using *'in situ'* and *'isolated perfused pig liver.'*

The only previous member of the Department of Anaesthesia at UCT to earn a D Phil(Oxford) 1971, was Julien Biebuyck. He did the early work that went into his thesis *'Metabolic effects of halothane with particular reference to the liver'*, at the Department of Anaesthesia UCT Research Laboratory but completed it under Sir Hans Krebs while a Nuffield Clinical Assistant at Oxford. Biebuyck's technician Anke Mans in the laboratory here, paid by the Anglo-American Research Fund, obtained her PhD in 1979 and emigrated to Hershey Medical School, Pennsylvania, to work with Professor Biebuyck. Between the duo and their colleagues, for the period 1980-1988 they had 20 publications on cerebral metabolism in the main and for the period 1981-1987 there were 23 published abstracts, book reviews or letters.

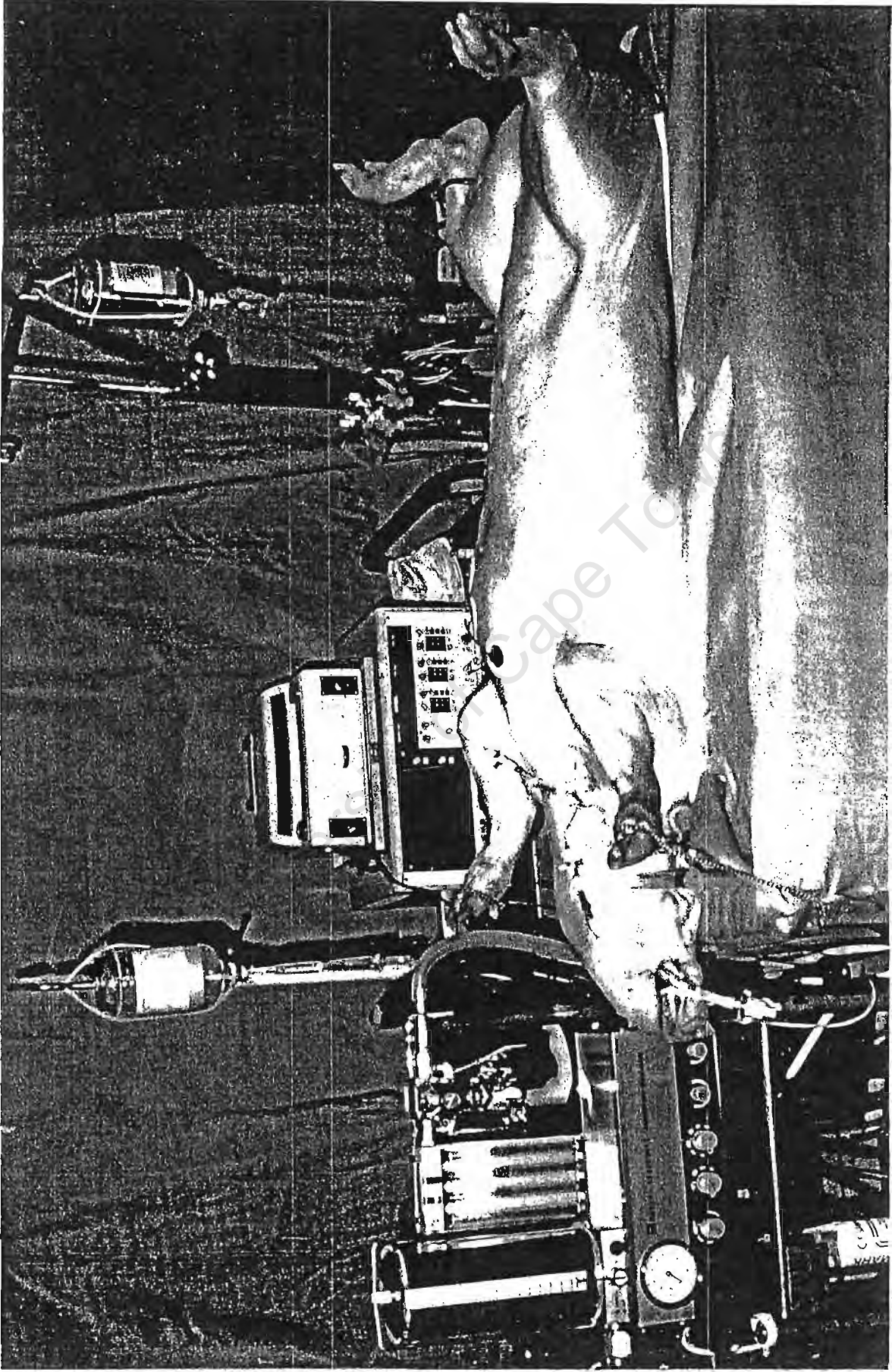
PHARMACOGENETIC STATES OF CONCERN TO THE ANAESTHESIOLOGIST.

Of the pharmacogenetic states of relevance in clinical anaesthesia, two are of particular concern because the abnormal drug responses that characterise them may be immediately life threatening. Further, both are covert, their presence revealed only by family history backed by sophisticated diagnostic tests. These conditions are Malignant Hyperthermia Myopathy and the Acute Porphyrrias (a fairly common condition in the eastern and western Cape Province of this country).

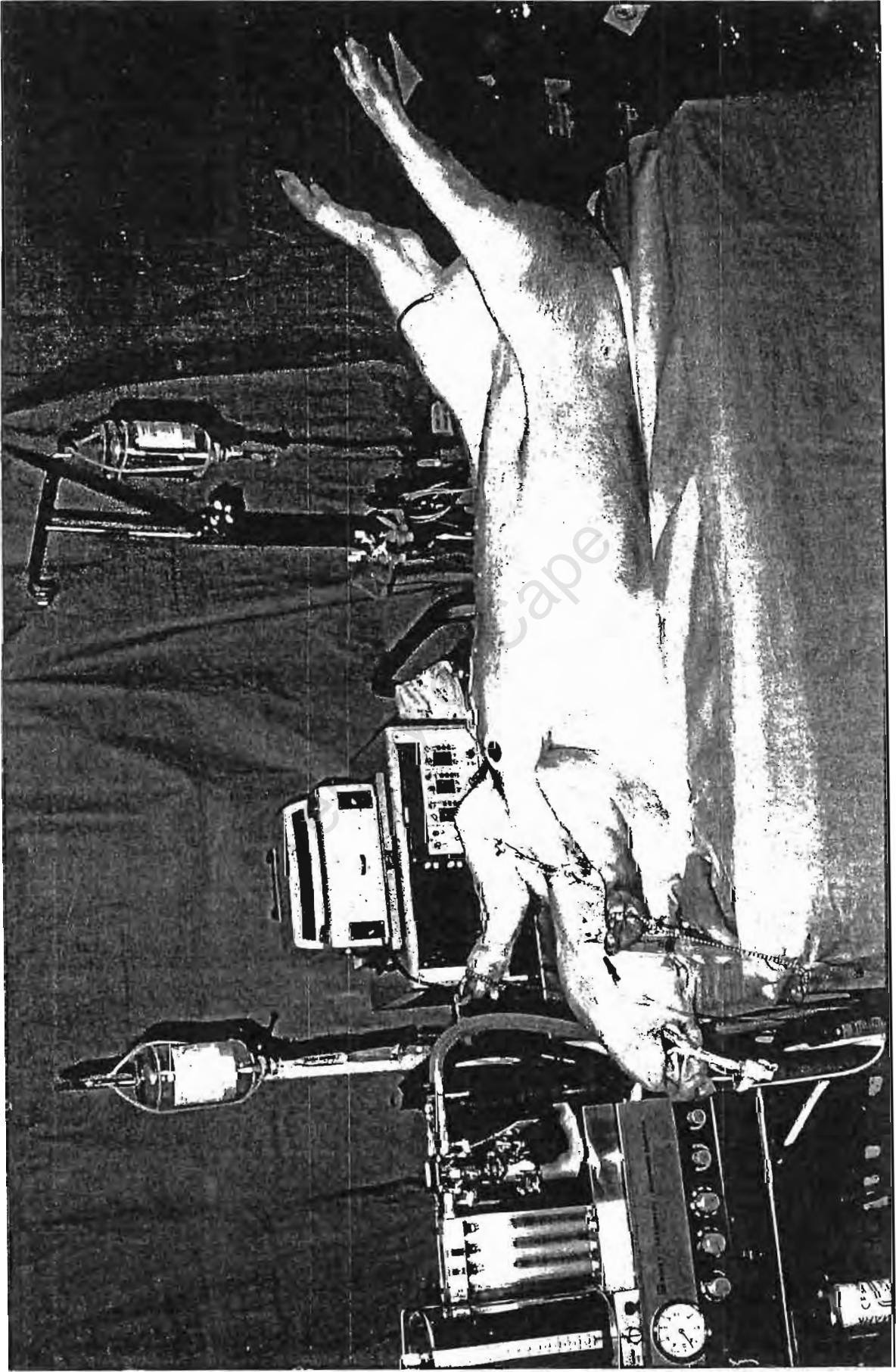
THE MALIGNANT HYPERTHERMIA MYOPATHY

First recognised in 1960 ⁴¹, and later reported by Saidman et al, 1964 ⁴², Relton et al 1966 ⁴³, Stephen 1967 ⁴⁴ and Wilson et al 1967 ⁴⁵, the syndrome of Malignant Hyperthermia (Hyperpyrexia) soon came to confront the clinical anaesthetist as something of a nightmare. This newly discovered syndrome represented one of the most interesting yet baffling conditions associated with anaesthesia. Though rare, its occurrence was unpredictable, its pathogenesis an enigma and its course fulminant. It is characterised by cyanosis, mottled skin, muscle rigidity, hypercapnia, hyperventilation, dysrhythmias and extreme pyrexia (a relatively late sign). Exhaustion and cardiac failure cause death in 70% of patients. There was no

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42 Porcine Model for MH – pre halot

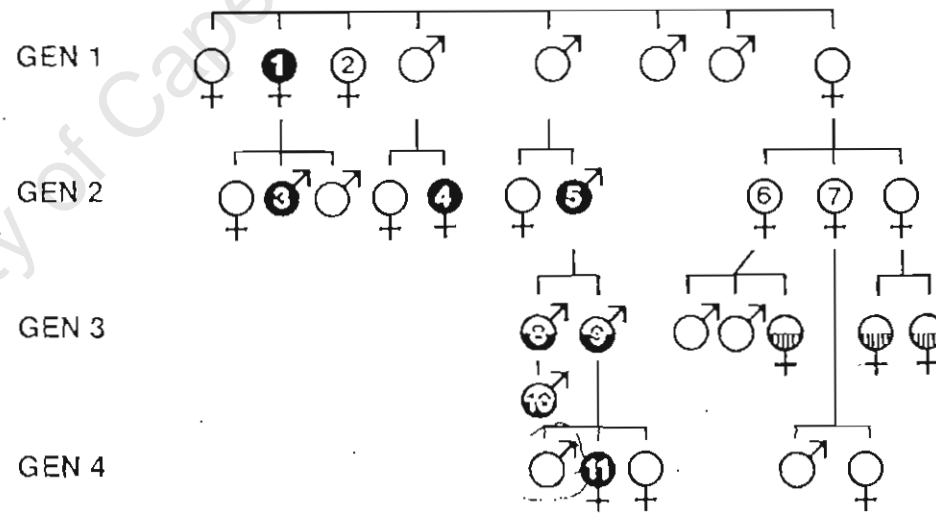


effective treatment and the acute syndrome was, almost invariably, fatal. Since that time, knowledge of that syndrome and its underlying myopathy has progressed to the stage that today its pathogenesis and characteristic biochemical disturbance is well recognised; the site of the responsible genetic functional lesion in skeletal muscle – the sarcotubular ryanodine receptor calcium channel – is known as is its DNA sequencing in MH susceptible swine and humans; the factors which trigger the acute attack in susceptible individuals are recognised; pharmacological control of the established syndrome and its prophylaxis available and reliable methods for the diagnostic screening of those suspected of possessing the MH gene(s) are established.

The serendipitous identification during the Liver Transplantation Research Project in 1967 of the Malignant Hyperthermia Susceptible Pig as a valid animal experimental model of Human Malignant Hyperthermia^{p 116} proved to be seminal for the condition's investigation both here and internationally. The contributions to this exciting story which emanated from research performed under the auspices of this Department of Anaesthesia from that time until the millennium, is impressive and, in summary, includes the following:

01. The identification of Stress Susceptible Swine as a valid animal experimental model of the Human MH syndrome and myopathy. ^{p 116, p 137}. Book chapters 1979, 1993.
- 02 Localisation of the basic functional lesion responsible for skeletal muscle rigor and formulation of the earliest diagnostic method for identifying swine susceptible to MH. ^{p 120 a}, book chapter 1973.
- 03 Characterisation of the fundamental biochemical reactions underlying the acute crises ^{p 124 a}.
- 04 The identification of agents which triggered the MH reaction and the consequent establishment of anaesthetic techniques safe to use in MH susceptible individuals ^{p 120 a, p 147, p 196, p 197, p 198, p 272, p 293, p 308}, book chapter 1991.
- 05 The establishment of effective therapy and prophylaxis for the acute MH syndrome.
 - a) Earliest attempts ^{p 120 a}
 - b) Procaine ^{p 133 a, p 147}
 - c) Dantrolene ^{p 158 a, p 177, p 205, p 212}
 - d) Beta adrenergic blocking agents

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- DIED OF MH OR ?MH
- ◐ IVCT MH SUSCEPTIBLE
- ◑ IVCT MH NEGATIVE
- CIRCLED NUMBERS FAMILY MEMBERS REFERRED TO IN TEXT

IVCT – *in vitro* contracture testing

Fig 8

Dantrolene ⁴⁶ proved to offer specific and complete control of the syndrome as well as prophylaxis. The very specificity of its action served to assist in the further elucidation of the myopathy's underlying sarcotubular dysfunction. Consequent on its introduction into clinical practice, the mortality of the acute MH syndrome has been reduced from its rate of 70-80% during the first decade after it was described, to a level of virtually zero today in cases treated timeously.

The characterisation of the biochemical reactions underlying the fulminant MH Syndrome ^{p124 a} must still stand as one of the most fundamental contributions to an understanding of the pathogenesis of this condition.

Publications ^{p 120 a. p 158 a} were subsequently designated *Citation Classics by Current Contents* ^{p 120 b} and the *British Journal of Anaesthesia* ^{p 158 b} respectively. The Editor, Dr FR Ellis commented "In less than 30 years, an albeit uncommon but frequently fatal condition with a 70% mortality rate has been 'controlled' to the extent that nowadays mortality is less than 2%. Gaisford Harrison can reasonably claim to be one of few people who have enabled this truly amazing success.I remember Harrison remarking in 1980 that MH should no longer be a clinical problem. Ironically, 1980, 1981 and 1982 were the worst 3 years in the UK from deaths from MH." Finally the whole subject of Porcine and Human Malignant Hyperthermia myopathy is reviewed in the five book chapters (1970-1993) which conclude this group of publications.

It is historically prudent to include some earlier correspondence of what appears to be descriptions of the MH syndrome. In an article Malignant Hyperthermia – An Historical Vignette ^{p 353} Professor Harrison describes some of these.

"The report by Denborough and Lovell in 1960 ⁴¹ of a family which manifested a strange disposition to death during general anaesthesia, led ultimately to the identification of Malignant Hyperthermia (MH) as a clinical pharmacogenetic entity. ⁴⁷ In 1987 a 2½ year old child died tragically from MH while subjected to general anaesthesia for conservative dentistry of a minor nature ⁴⁸. Subsequent

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muscle biopsy *in vitro* contracture testing (IVCT) of the proband's close family showed the child's father, uncle and cousin (the latter's son) all to be susceptible to MH(MHS). Follow-up of a story that a cousin of the child's grandfather, 6 (fig 8) had believed that members of her family had a strange sensitivity to general anaesthetics which were dangerous for them, revealed a family tree (fig 8) which showed circumstantial evidence of the MHS trait in all four generations. While, of itself, such can no longer be regarded as extraordinary (MHS transmission is autosomal dominant and many such pedigrees have been reported since Denborough and Lovell's original description), associated letters/reports written in 1919, which came to light, proved to have considerable historical interest. These letters which relate the circumstances of the first two deaths during anaesthesia in a family – that of 1 (fig 8) in 1915 and her son 3 (fig 8), in 1919 – attest to the recognition by Dr GA Jones of 'Little Seeleys', Buckinghamshire, of a familial fatal idiosyncrasy to anaesthetics (in this case, chloroform) which anticipated by forty years that by Denborough and Lovell. Sadly his observations do not appear to have been published at the time. Though 1 (fig 8) died in 1915, the letters came to be written only in 1919 following the death of her son when the latter's death provoked a re-examination of the circumstances of the former.

During an operation for the exploration of a ruptured kidney, 3 (fig 8) died under anaesthetic at Marlborough in February 1919. The following is an extract from the report submitted by the anaesthetist, Dr Edward Penny of Marlborough."

"The anaesthetic was chloroform and ether given on an open Schimmelbusch mask and the amount used during the operation was almost exactly one ounce of the former and two ounces of the latter, the duration of the administration being half an hour. The patient who did not seem at all nervous, passed normally and quickly under the anaesthetic but when the surgeon was about to begin the operation, it was noticed that a curious muscular rigidity existed in the arms, legs and abdominal muscles, the patient being fully under the anaesthetic and breathing quietly and freely. This muscular condition persisted during the operation which consisted in the first stage of exploring the peritoneal cavity in front of the injured kidney and in the second stage in cutting down to the kidney from behind. Just as the second stage was being completed a violent and persistent spasm of all the respiratory muscles of the thorax occurred and the

movements of the chest ceased suddenly and absolutely. Artificial respiration was at once resorted to but no re-establishment of natural breathing could be obtained, though it was evident no impediment existed in the passage of air through the larynx. The heart continued to beat for a time after the fatal spasm occurred.....”

Following the above report, a letter (from which extracts are are quoted below) to the above's father (whose wife I (fig 8) died in 1915 during anaesthesia) was written by the anaesthetist concerned, Dr GA Jones.

“.....Mrs-----’s operation was rather a long one in two stages, the first being abdominal for the fixing of the womb to the abdominal wall and the second vaginal for still further preventing prolapse.....I began with gas and ether and changed to the mixture of chloroform and ether as is usually done in operations of any length. The first stage was done in half an hour to three quarters of an hour and there was nothing then in the condition to cause the slightest anxiety.....The second stage took about half an hour and it was not until near the end that any alarming symptoms showed themselves. There was a marked tendency to spasm of the muscles of the arms and jaw and apparently those of respiration, and the breathing stopped fairly quickly. The condition of the pupils had indicated a medium rather than deep anaesthesia i.e. they were contracted, not dilated as in chloroform overdose. When breathing stopped, the pulse was present though rather rapid. Stimulants and artificial respiration were tried without avail. Tracheotomy was tried as a last resort.

There is a strong similarity in the cases of mother and son as regards the curious rigidity and spasm....but it is very rare indeed for any spasm of the muscles of respiration to occur. It looks as if in both cases there was a tendency to abnormal rigidity coupled with susceptibility to chloroform.

The sister of the house told me afterwards that Mrs -----had had attacks of muscular spasm apparently suggesting the condition known as Tetany.....The fact of a fatality occurring to both mother and son is very suggestive, but I cannot find any mention of hereditary susceptibility definitely ascertained in the standard text book on Anaesthetics.....One is inclined to advise that the other children should be thoroughly examined by a first class physician who might be able to say whether they

had anything of the kind, but it's a condition very difficult to recognise. I think chloroform should be absolutely barred if an operation were necessary and as little ether given as possible on an open mask after an injection of Morphine. Yours sincerely, etc."

In 1925 a third member of the family, 4 (fig 8) died while anaesthetised for an appendectomy. Clinical details of this fatality have been lost. However this succession of three deaths under anaesthesia in this family led them to take the precaution of showing the above letters to the Matron of the Johannesburg Hospital in 1933 when another member of generation 2, 7 (fig 8) entered the nursing profession. Some years later, yet another member of generation 2, 5 (fig 8) (the grandfather of the child that motivated this report died) while anaesthetised. In this case, details of which are now sadly lacking, the patient died immediately postoperatively after a gastric operation.

This family's history begs the question "Was Jones' fatal familial susceptibility to chloroform indeed MH?" In describing the clinical circumstances associated with the deaths of 1915 and 1919, neither Jones nor Penny make any mention of their patients' body temperature – an omission that could be regarded as invalidating any retrospective diagnosis of MH. Yet it must be remembered that at that time monitoring of the patient's temperature during anaesthesia and surgery was not routine practice, if indeed it was ever recorded at all under these circumstances. Further, both accounts do lay particular stress on the appearance of that other cardinal manifestation of MH, muscle rigor – both implying that respiration ceased because of the rigidity of the muscles of respiration. Jones also mentions the history given by a "sister of the house" that her sister had complained of bouts of muscle spasm, a feature well documented in some subjects of the MHS trait.

When the Jones and Penny accounts are considered in the light of objective contemporary evidence of the death from MH of 11 (fig 8) the IVCT diagnosed MHS trait in her father 9 (fig 8), her uncle 8 (fig 8), and her cousin 10 (fig 8), together with the histories of the anaesthetic related deaths of her grandfather 5 (fig 8) and his cousin 4 (fig 8), the balance of probability must lead us to conclude that these cases of "hereditary susceptibility" to chloroform, identified by Jones, were none other than

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historically very early examples of MH, indeed among the very earliest to be described ⁵² albeit unpublished till now.

THE ACUTE PORPHYRIAS ⁴⁹

The first reference to porphyria appeared in the records of the SAIMR before the outbreak of World War II, but research into this disorder started only much later. Porphyria denotes an abnormality in porphyrin metabolism in the body, which, under certain conditions eg. the use of certain drugs, may lead to life-threatening situations. The porphyrins are extremely complex biochemical compounds – pigments that are widely distributed in nature and forming important constituents of haemoglobin and certain enzymes. Disorders of porphyrin metabolism may manifest in various forms and cause abdominal colic, paralysis, mental disturbance, skin eruptions and, in acute form, sometimes death.

Clinical, biochemical and metabolic studies in human porphyrias probably started with a student publication in 1938 by Lennox Eales ⁵⁰, who had later devoted a whole academic life to the subject with the support of EB Dowdle ⁵¹, SJ Saunders ⁵² and others. Since 1957 he has had the support of the CSIR and MRC as Director of a unit at the University of Cape Town ^{53,54}.

Cases that are recognised as porphyria have been recorded since the mid 1800s, but the first to describe a series of 11 cases of acute porphyria in South Africa was HD Barnes ⁵⁵, a medical technologist in the SAIMR's Department of Biochemistry, in 1945. In about 1951, Dr Geoffrey Dean ⁵⁶, a Port Elizabeth physician came across a series of patients who appeared to be hysterical and then developed generalised paralysis - he described this in a book, 'The Porphyrins – a story of inheritance and environment' ⁵⁷.

His endeavour is a fascinating story of research, after Dean realised that he was dealing with a distinctive type of inherited porphyria in Afrikaans-speaking people, which showed dermal manifestations and acute features, particularly after exposure to certain drugs such as barbiturates and sulphonamides. In the academic isolation of Port Elizabeth, Dean established the origin of some 10,000 present carriers of the South African genetic porphyria ⁵⁸. He named this *porphyria variegata*. Along with Barnes and the Port

Elizabeth branch of the SAIMR, Dean published a paper in 1955 'The Inheritance of Porphyria' ⁵⁹ by which time they had traced the geneology of 13 porphyric families of the Cape Burgher stock and a total of 236 members of these families.

They found that this could be traced to the first South African van Rooyen, Cornelius who came to the Cape in 1711 and who married Jacomijntje Gerritsz, the daughter of Gerrit Jansz, one of the first free burghers. The Here Sewentien decided to send out orphans from the orphanage in Rotterdam as future wives for these free burghers. One of the first to arrive was to be married to Gerrit. She was Ariaantje Jacobs, also called Ariaantje Adriaans or Ariaantje van der Berg. It thus appeared that the thousands in South Africa (about 0,5% of the Afrikaans-speaking population) are members of one huge family and that the condition was introduced either by Gerrit or by Ariaantje.

Although not encountered commonly, the Acute Porphyrias are of particular concern to the anaesthetist since anaesthetic agents – in particular the older intravenous induction agents – have featured among those drugs most strongly incriminated in initiating acute attacks. South Africa boasts the highest incidence in the world of one of the acute porphyrias, *Variegate Porphyria* (VP). Here the average anaesthetist can anticipate being presented with about two such cases per year to anaesthetise. These investigations which provided information of importance to the safe practice of anaesthesia, were essentially collaborative projects with the MRC sponsored Porphyria Research Unit at the University of Cape Town.

The first two papers ^{p 195, p 253} in this group report the screening for porphyrinogenecity, in the DDC primed rat model of VP, of various intravenous anaesthetic agents introduced into clinical practice over the last three decades. The third paper in this group ^{p 343} is of importance for it reports the first ever prospective controlled clinical and biochemical drug trial conducted in a group of porphyric individuals. In this instance the trial was of the new intravenous anaesthetic agent propofol. Their trial confirmed the lack of porphyrinogenecity of this drug, first displayed in the animal experimental model, and its potential for safe use in susceptible patients.

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Finally this group of publications includes three review articles ^{p 394, p 403, p 492} which give authoratative directions for the safe anaesthesia of porphyric patients. In January 1988 the Department of National Health and Population Development, Genetic services issued a List of Medicines for Porphyria Patients. The catalogue was compiled from information supplied by the Medicines Safety Centre, Department of Pharmacology, Medical School, University of Cape Town. The drugs were listed as either Dangerous; Contentious or Safe. Unfortunately many drugs labelled as contentious were based on a single report of possible porphyrogenecity.

The UCT Porphyria Service under Professor Lennox Eales incorporating the Porphyria Clinic and a Porphyria Laboratory, provides the routine screening and quantitative porphyrin analytical facilities. Besides Groote Schuur Hospital, work is received from several other South African hospitals and the international reputation was such that numerous samples were tested from subjects in New Zealand, USA, Britain and Spain. In 1983 with the retirement of Professor Eales, the UCT/MRC Porphyria Clinic was incorporated into the Liver Clinic under the joint direction of Professors Ralph Kirsch and John Terblanche, with Dr RJ Hift maintaining his interest in the porphyrias.

BLOOD WARMER

PRETRANSFUSION BLOOD WARMING

A major hazard of massive blood transfusion is the inadvertent induction of hypothermia. This can be prevented by the pre transfusion warming of blood. Methods to achieve this include the use of direct heat exchange systems applied to the transfusion line or alternatively, the exposure of individual units of blood to electromagnetic radiation in either the radio or microwave frequency. "The practice of warming bottles or packs of blood in basins of water is dangerous and should never be used" ⁶⁰.

In the 1960's , a unique blood warming apparatus utilising a radiofrequency (27 Mhz) energy source was developed in association with the UCT Department of Electrical Engineering. Initially, designed to heat blood stored in bottles, it was subsequently modified to accommodate Whole Blood stored in Polyvinyl Chloride bags. The commercial version, designated the **TAURUS 300** (Latin for Bull)

University of Cape Town

TAURUS 301

BLOODWARMER



MANUFACTURED by: CAPE MECHANICAL & ELECTRICAL INDUSTRIES (PTY) LTD.

R12000

MARCH 1989

blood warmer which was developed and manufactured by Plessey (SA), warmed 600ml PVC units of blood from 4°C–34°C in from 3–4 minutes (depending on the length of storage) without *in vitro* evidence of physical erythrocyte damage. This proved to be more cost effective than the standard 'in line' direct heat exchange method of blood warming. ^{p 89, p 94, p 102, p 103}

Further such pre transfusion warming of blood was shown to reduce the degree of haemolysis which otherwise resulted from pressure assisted massive transfusion. ^{p 99} The TAURUS 300 blood warmer was used safely in South African hospitals for more than 25 years. At this time, in response to routine employment for transfusion of red blood cell concentrates (haematocrit of 60%) rather than whole blood on which the safety of Radio Frequency Heating and its effects on erythrocyte integrity had originally been tested, as well as the advent of the new electrical technology, the blood warmer was completely re-engineered. Designated the TAURUS 301, it is now manufactured by CMEI of Cape Town. The effect of Radio Frequency Heating of stored blood both Whole and RBC concentrates (Hct 60%) were comprehensively re-examined. In addition to conventional '*in vitro*' tests of RBC integrity, the survival of transfused RF warmed erythrocytes was measured '*in vivo*' for 3 weeks post transfusion. RF Heating was found to have no effect on RBC survival. ^{p 365}

The TAURUS 301 RF blood warmer continues to be widely used in South African Hospitals. Perhaps one disappointment is that neither Plessey nor CMEI managed the marketing and sales of the apparatus overseas effectively.

TETANUS NEONATORUM

One of the commonest single causes of tetanus is infection occurring in the new born infant when the raw umbilical stump becomes contaminated with *clostridium tetani* spores. The clinical picture of tetanus is virtually entirely due to the effects of toxin on the central nervous system and not on the peripheral nervous system and muscles. Tetanus neonatorum can also be an extremely important cause of neonatal death, accounting for 70%-90% of such deaths in less developed countries in the sixties. Cases of

tetanus have often followed frankly dirty procedures by non professionals eg circumcisions, ear piercing or ritual incisions or the application of soil, ashes or dung to the umbilical stump.

Investigation of the causes of death in tetanus, as listed by most workers who have studied large series of cases, leads to a clear conclusion that the respiratory system is involved in the vast majority of patients.

The earliest ongoing clinical research project of importance strangely enough, did not concern anaesthetics per se but rather technical skills in the performance of Intermittent Positive Pressure Ventilation⁶¹ that had become part and parcel of clinical anaesthetic technique following the introduction into practice of muscle relaxant drugs in the years following the Second World War.

Publications^{p 55, p 69, p 156}, all in the *British Medical Journal*, summed up in the *Year Book of Anaesthesiology* (1975), publication^{p156}, reported the evolution of a radical regimen of treatment for Tetanus Neonatorum which reduced the 90% mortality of this condition, before its introduction in about 1957, to 10% in 1974. This regime involved the use of prolonged (2-4 weeks) muscle relaxant induced paralysis with IPPV (per tracheostomy) combined with the standard use of anti-tetanus serum and Diazepam. Much trial and error ingenuity was required to adapt for use in neonates, the then only available rather clumsy adult mechanical pulmonary ventilator, the East Radcliffe Pump^{62, 63, 64, 65}. In addition, the clinical protocol for the management of prolonged IPPV in neonates was developed *ab initio*. This included the first use of end tidal expired carbon dioxide concentration monitoring, estimated by the Rebreathing Method, as a measure of the adequacy of pulmonary ventilation^{p156}.

Tracheostomy was mentioned as a possible means of treating respiratory obstruction in tetanus by Curling in 1837. 'In a case of imminent danger from suffocation, it has been suggested that relief might be afforded by an opening made in the trachea.' Tracheostomy was advocated for all patients showing signs of respiratory failure, those with copious secretions or patients with severe spasms. This was accompanied by the immediate application of IPPR. Reports of its possible value in children and adults followed from

Britain and Nigeria, but the death rate in these early series remained high. The earliest report of the use of this method in tetanus neonatorum came from Cape Town, where Smythe and Bull (1959) recorded their experience with 9 neonates, only 2 of whom survived ⁶⁶.

Subsequent experience with the newborn showed that the early hopes were justified. A randomised clinical trial on 50 infants with severe tetanus neonatorum, carried out in Durban, showed IPPR to be superior to a conservative treatment regimen which used phenothiazine derivatives and phenobarbitone to control spasms, the mortality rate being almost halved – from 84% to 44% ⁶⁷.

OBSTETRIC ANAESTHESIA

Integrated with the Gynaecology Anaesthetic service, the Department operated a separate Obstetrical Anaesthetic service from 1954 at the MF Obstetric ward in the Maternity Block at Groote Schuur Hospital.. This was besides the service already being offered at the Peninsula Maternity Home, Mowbray Maternity Hospital, the Shipley ward at the New Somerset Hospital and the St Monica's Home , Bo Kaap. Investigations undertaken and reported on by staff working in this unit may be grouped into two periods, each of which focussed on a different aspect of obstetrics.

During the first of these (1954-77) (publications ^{p 32, p 91, p 113, p 115, p 148}) the focus was on the effect of clinical anaesthesia variables on the post delivery conditions of the neonate following Caesarean section. The earliest of these ^{p 32} 1956; ^{p 91} 1965 reported interalia, the lack of correlation between the duration of anaesthesia per se, predelivery and the time to sustained respiration and Apgar Score post delivery. These findings invalidated the then prevailing belief to the contrary, which had led to the adoption of the so called 'smash and grab' anaesthetic/surgical technique for Caesarean section, so allowing a more measured and controlled technique. In addition, the latter paper reported the advantages of methohexitone versus thiopentone induction for the high risk foetus.

Perhaps the most sophisticated study in this group of investigations was that reporting observation of the anaesthetic related factors affecting foetal oxygenation during Caesarian section ^{p115} 1968. Presentation of this paper won the Registrar's Prize at the 1968 AAGBI (Anaesthetic Association of Great Britain & Ireland) meeting in London where it was widely acclaimed for its quality.

A 20 year hiatus in Obstetrical publications followed before the next group of investigations commenced, the focus of which was the introduction of magnesium sulphate in the management of Gestational Proteinuric Hypertension. More will be said about this in the Professor James era.

ANAESTHETIC CIRCUITS and their PERFORMANCE

The focus of interest of some of the earlier research undertaken in this department was the investigation of the performance of anaesthetic circuits in terms of CO₂ elimination and O₂ delivery. This aspect is represented by 5 publications ^{p 28, p 37, p 46, p 83, p 234 b}. Of these ^{p 28} by Jones CS and Harrison GG is still of some historical interest in that it documents the first objective observations of the performance of the classic Magill semi-open attachment ⁶⁸ relevant to the elimination of CO₂ from the circuit. Publication ^{p 83} described and studied the performance of a modification of the Jackson-Rees paediatric circuit ⁶⁹ which came to be known in local circles as the 'Cape Town Circuit'.

The above selected research topics which have been elaborated upon, represent the main thrust of research in the Department. However other research was conducted on an ongoing basis and spread over several years. Financial and staff constraints over the years had a major role to play in reducing the output from the Research Laboratory , but it is evident that despite this, work continued.

RESEARCH AND TRAINING

As for senior academic degrees, the Department does not rate highly, neither does any other department in this country except for the one in Stellenbosch University. Professor Harrison in his talk in March 1993, 'Anaesthesiology as an Academic Discipline – A Perspective of its current Status in South Africa' presented the details.

Academic Senior Degrees awarded by South African Universities for theses reporting original research on topics of relevance to Anaesthesiology.

A list of the theses are noted for information:

UNIVERSITY OF STELLENBOSCH

MD

- | | | |
|------|-----------------|---|
| 1983 | JAM de Roubaix | Comparative haemodynamic interactions between Propofol, Alfathesin, Ketamine and Enflurane. |
| 1987 | AR Coetzee | Miokardiale kontraktileiteit; hart pompfunksie en sirkulatoriese reserwe soos omskryf in die hond model. |
| 1990 | K Payne | Midazolam in paediatric premedication: The pharmacokinetics, clinical efficiency and ability to modulate behaviour patterns post-anaesthesia. |
| 1991 | B Murray | New methods of detecting rebreathing with particular reference to the analysis of inspired Carbon Dioxide. |
| 1999 | W van der Merwe | Renal dysfunction after infrarenal clamping of the aorta during major vascular surgery. |

PhD

- | | | |
|------|-------------|---|
| 1981 | JA Roelofse | Historiese bewuswording van die voorkoms van kardiaal disritmieë tydens narkose vir tandheelkundige prosedures, met verwysing na 'n vergelykende studie oor die gebruik van halotaan en enfluraan. 1846-1978. |
| 1984 | AR Coetzee | Cardiac risk factors under general anaesthesia in the ischaemic heart model of the dog. |
| 1988 | HJ du Toit | An investigation of the individual and combined effects of methylprednisolone and heparin treatment prior to and after induction of disseminated intravascular clotting with thrombin in the baboon. |
| 1989 | P Fourie | The evaluation of cardiac function with reference to pulmonary hypertension |
| 1990 | DM Miller | Evaluation and classification of commonly used breathing systems, |

including new designs.

(Dr Miller was a member of the Department of Anaesthesia at UCT from 1980 – 1984, where some of his research was conducted.)

- | | | |
|------|-------------|--|
| 1991 | PW Hattingh | The role of beta-adrenergic blocking drugs and calcium antagonists on the isolated rat heart after ischaemic arrest. |
| 1993 | JF Coetzee | An investigation into the cardiovascular effects of propofol and alfentanil for total intravenous anaesthesia. |
| 1994 | AR Coetzee | Effect of inhalational anaesthesia of myocardial ischaemia and reperfusion injury. |
| 1996 | GJ Muller | 'n studie van die molekulêre en kliniese toksikologie van die gifstof van die Suid-Afrikaanse <i>latrodectus</i> spinnekop spesies. |
| 1997 | E Basson | Lung resection and cardiopulmonary reserve. |
| 2000 | AP Boezaart | Cerebral blood flow, metabolism and function during induced hypotension with esmolol: an animal study comparing esmolol with sodium nitroprusside. |

UNIVERSITY OF CAPE TOWN

MD

- | | | |
|------|--------------|--|
| 1966 | GG Harrison | Death due to Anaesthesia – its incidence and some associated factors. |
| 1969 | IA Sloan | Anaesthesia during surgery for congenital heart disease, with special reference to lacticidosis. |
| 1996 | PD Potgieter | Severe community-acquired pneumonias. |

PhD

- | | | |
|------|---------------|---|
| 1977 | Ms Jean Marsh | The interaction of some halogenated agents with drug metabolizing enzymes. |
| 1979 | Ms Anka Mans | Neurotransmitter alterations in hepatic failure: influence of precursor distribution and blood-brain barrier transport. |

1980	Ms Veronica Manca	The interaction of xenobiotics and anaesthetic agents with hepatic microsomal stearate desaturase.
1983	Ms Melanie Ziman	A comparison of the effects of xenobiotics and anaesthetic agents on hepatic haem metabolism.
1990	Mr Alfred Thumser	The glutathione S-transferases: inhibition, activation, binding and kinetics.
1992	Dr B Mets	Lignocaine extraction ratio and clearance as an indication of hypoxic hepatic injury – a study using <i>in situ</i> and isolated perfused pig liver.

MPhil (Crit Care)

1990	DM Linton	Myasthenia Gravis at Groote Schuur Hospital: An audit (1970-1990)
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DSc (Med) (UCT)

1993	GG Harrison	A Record of Research directed towards Enhancement of the Safety of Clinical Anaesthesia. (The first candidate at UCT to obtain the DSc by thesis)
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UNIVERSITY OF WITWATERSRAND

MD

1947	L Melzer	Death associated with anaesthesia
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PhD

1990	MFM James	The role of magnesium sulphate in the control of catecholamine induced cardiovascular disturbance.
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UNIVERSITY OF THE ORANGE FREE STATE

MD

1986	EA Shipton	Epidural fentanyl in the management of postoperative pain.
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MEDICAL UNIVERSITY OF SOUTH AFRICA

PhD

1990	JL Couper	The introduction of ether into South Africa
------	-----------	---

UNIVERSITY OF NATAL

MD

1980 JG Brock-Utne * Clinical and experimental investigation into the prevention of the Acid Aspiration Syndrome.

- (Degree from Bergen University, Norway – based on work performed in Natal)

UNIVERSITY OF PRETORIA

To 2000 – No PhD's or MD's in Anaesthesia but several MMeds

Mention so far, has not been made of other members of the Research Laboratory who were there on a more permanent basis. In 1979 Dr David Morrell was appointed Director of the Research Laboratory and he remained here until his departure in 1989, to take up the post of the Chair of Anaesthetics at Witwatersrand University in Johannesburg. He was succeeded by Drs Richard Erskine, Berend Mets and in the mid ninety's by Piotr Janicki. More will be said of Morrell at a later stage. The other members were the permanent staff, laboratory assistants who are still employed here in 2001. Brian occupies a unique place in the laboratory and his role and contributions to science must be illuminated.

LABORATORY ASSISTANTS

16 08 1964	Mr Brian Sasman
08 08 1973	Mr Harold Stuurman
10 09 1974	Ms Tony Marcus

MR BRIAN SASMAN

RESEARCH ASSISTANT IN THE DEPARTMENT OF ANAESTHESIA

Mr Brian Sasman was born on the Cape Flats (not a building but the topographical flatland of the greater part of the residential Cape Peninsula) on 05 February 1946. At the age of about 10 years, he, one day, trod on a nail in a heap of compost while gardening and soon developed tetanus, a not uncommon infection at that time. Admission to the Groote Schuur Hospital brought him to a ward at the back end of the hospital , where he was kept in isolation, ventilated for a period of about 2 ½ months and treated. He was one of the early Smythe / Bull patients.

As fortune would have it, Brian improved and was then transferred to the D ward at GSH. He was unable to recall any memory of the period when he was being ventilated, but remembers having a mild paresis on his left side, which eventually improved after physiotherapy. He returned to school although he was set back by one year. The need to supplement the family income caused him to leave school at the age of 14 years and seek employment. With a basic education of Standard Six, Brian worked in Cape Town for two years. Thereafter he found a half day job at the University of Cape Town Medical Campus as a cleaner of the anaesthetic laboratory and the orthopaedic workshop.

A period of almost 5 years had passed at Medical Campus, when Professor Bull curiously enquired about the scar in his neck. Brian related his story and to Professor Bull's utter amazement, it dawned that Brian was indeed one of his and Professor Smythe, the paediatrician's earliest successes in the treatment of tetanus by the very innovative, experimental and completely new method of treatment by intermittent positive pressure ventilation and paralysis using curare. Mention has been made of this earlier in this history.

From here onwards Brian took up a full time position in the anaesthetic laboratory. Professor Harrison had returned from England and was by now actively involved in animal research at The Jan S Marais Surgical Research Laboratory, where he was often called in to assist with anaesthetising animals for other researchers. Brian was his regular assistant and was on many occasions called in to assist Professors Christiaan and Marius Bamard, John Terblanche,⁷⁰ Rosemary Hickman and others, all of whom were to be recognised researchers internationally.

With all this practical experience, as fate would have it, Dr Harrison, phoned in one day to say that he would be delayed. Brian plucked up courage and with the consent of the surgeon, anaesthetised the pig with ketamine and pentothal, intubated the animal, set up lines and monitored the animal. When Harrison arrived, he was surprised to find the research already in progress. Brian, in trepidation, admitted that he had gone ahead to avoid any delays. Harrison checked everything, expressed his satisfaction and thereafter

entrusted this job to Brian. Henceforth, a phone call from Harrison to Brian, to get pig number so & so was all that was required.

In the early seventies, this duo was involved in research into the Malignant Hyperthermia Syndrome. It was a chance finding that a certain strain of pigs, the Landrace breed would develop a porcine hyperthermia under stress. The search for this special breed of pig led them to several pig farms. Armed with a modified jam tin, to serve as an anaesthetic mask along with a portable anaesthetic machine, they would challenge the pigs with halothane. All stock pigs would be screened and perhaps out of a total of 20, 2 'hot pigs' would be found. It was then decided to try to breed this special strain. Here again, Brian came forward and volunteered his services. His youth in the Cape Flats, on a farm in Ottery, had given him some experience in pig breeding. He requested one male and one female of this species and some time off. Brian's keen sense of observation and understanding, caused him to notice that the male would hyperventilate and heat up during mating, so Brian assisted by cooling the pig down with a hosepipe and successfully bred a litter of 12. At the age of 4-5 weeks they were tested and once weaned, were taken to Medical School.

Further work involved the design of his own endotracheal tube for rats. Along with Professor Lionel Opie's assistant Dr David Posel⁷¹, a laryngoscope for these rats was modified by them. This was the 'Seward' or flat and long 'Penlon Macintosh' paediatric laryngoscope blade whose end was filed down to make it narrower. Intubation and ventilation was essential for these rats who underwent thoracotomy and were placed on the rodent ventilator. Later, Brian was involved in the design of a catheter for the measurement of intravascular pressure during renal arterial perfusion.^{p456}

His other work involves the design of electrodes for the monitoring of rats and he has become adept in the placement of both arterial and venous femoral catheters in these rats, for blood pressure readings, the administration of drugs and for sampling.

Brian's completion of 25 years of continuous, loyal service was acknowledged by the Department of Anaesthesia in 1989. He remains in their service.

SURGICAL INTENSIVE CARE UNIT

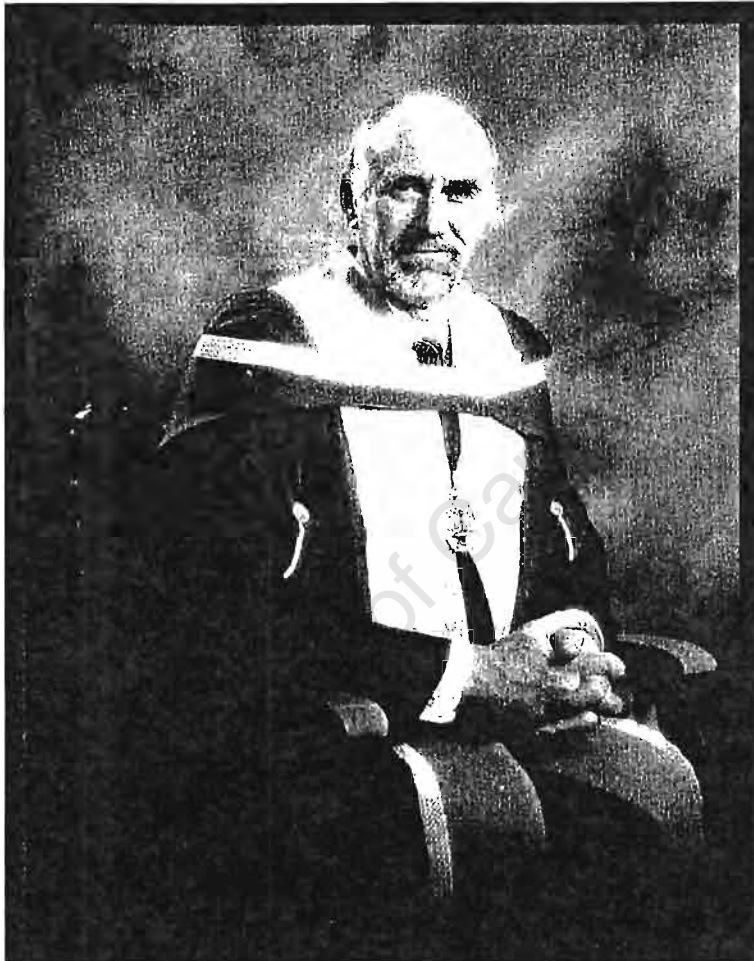
The year 1984 will be remembered as one of the years of the severest financial stringency in the hospital's history, a circumstance which had tremendous negative impact on all aspects of our service. This, notwithstanding, the Department was loaned, for the first time since 1980, an additional specialist post to provide service in the General Surgical Intensive Care Unit.

Dr Bill Chappell, an anaesthesiologist, previously from the Respiratory Unit, was appointed Principal Specialist-in-charge of the Surgical Intensive care Unit towards the end of 1983. The six bedded unit was located in B7 ICU and was established in January 1984. It took the bulk of the more critically ill patients, the majority admitted postoperatively directly from the adjacent general surgical theatres. Less critically ill patients would, whenever possible, be managed in the B1 and B4 ICU's which have proportionately fewer nursing staff. Dr Chappell left for private anaesthetic practice in Pietermaritzburg at the end of 1985 and he was replaced by Dr Lance Michell formerly of the Department of Anaesthesia. As such the Surgical ICU fell under the direction of the Department of Surgery. Aside of the director, the Department of Anaesthesia seconded one anaesthetic consultant on a rotation to this unit.

PROFESSOR DAVID FRANCIS MORRELL

As noted earlier, Dr David Morrell was appointed Director of the Departmental Research Laboratory in 1979. David obtained his MB ChB (UCT) with distinction in 1969 and received the Ernest Oppenheimer Bursary. After a 5 year stint in general practice in Kokstad, East Griqualand, he joined the Department of Anaesthesia, Groote Schuur Hospital in 1975 and received his FFA (SA) in 1977. He was appointed senior lecturer during the period 1981- 1983 and principal specialist in 1984.

Though catholic in his research interests, especially when collaborating with or directing the research programmes of others, his own major interests and contributions have been in two directions – that of pharmacokinetics and applications of computer technology. The former interest led to his development of comprehensive facilities for anaesthetic drug assay utilizing GLC (Gas Liquid Chromatography) and HPLC (High Pressure Liquid Chromatography) techniques. Besides the pharmacokinetic application, the



Professor David Francis Morrell
President College of Medicine of South Africa
1998 - 1999
Vice President SA Society of Anaesthesiologists
Professor of Anaesthesia
University of Witwatersrand

latter was rapidly diversified into more general data capture and retrieval systems, literature search both 'inhouse' and via a National Library of Medicine, Washington DC, link-up teaching programmes, office administration and word processing. He became an extremely skilled programmer and a sought after 'debugger'.

At the laboratory he was involved in the pharmacokinetics of lignocaine, bupivacaine ^{p 196, p 200, p 206, p 215} and thiopentone ^{p 216}; calcium homeostasis ^{p 241, p 283, p 293} and new approaches to radiosensitisation: hypothermia and hyperbaric oxygen ^{p 271, p 276} to name but a few projects.

He has been Examiner / Convenor for both Part I & II of the College of Medicine Faculty examinations; both Examiner and External Examiner for theses for PhD, MMed (Anaes), D VSc and MSc. Dave is regularly involved in all aspects of legal proceedings related to anaesthetic mortality and morbidity in various courts (Inquest, Civil and Criminal) in the capacity of either Assessor or Expert Witness. He also acts as Committee Member at the South African Medical & Dental Council Disciplinary Hearings. His expertise and gift as an eloquent lecturer is well known and there is rarely a congress or anaesthetic meet where he is not involved.

Professor Morrell has played an important role in the South African Society of Anaesthetists both locally and at National Council level, where he has been elected President in both 1988 / 1989 and 2000 / 2001. In 1989 he left the Department to take up the position of Professor, Chair of Anaesthetics, University of Witwatersrand, in place of Professor van Hasselt who had retired. For the period 1998 / 1999 he was President of the Colleges of Medicine Of South Africa.

After 11 years as Head of Anaesthesia at the University of Witwatersrand, he handed in his resignation to return to his hometown at Kenton-on-Sea at the eastern Cape. He now serves on a sessional basis at both Livingstone and the Provincial Hospital in Port Elizabeth.

Professor Harrison, due to retire in 1987, took sabbatical leave from February to October 1986. While on sabbatical leave in the UK, Professor Harrison was appointed Visiting Scientist to the Clinical

Research Centre, Northwick Park, Harrow and Rank Visiting Professor of the Faculty of Anaesthetists of the Royal College of Surgeons in England. This latter appointment involved visits to lecture at the Departments of Anaesthetics of the Universities of Cardiff, Bristol, Oxford, Glasgow and Liverpool. Thereafter he presented papers at the 4th International Hyperthermia Workshop, held in York in September.

During March and April 1987, he was Visiting Professor, Department of Anaesthetics, Christchurch School of Medicine, University of Otago, New Zealand as well as CME Lecturer, for the Conference of Anaesthetists, New Zealand. During these periods of sabbatical leave in 1986 and 1987, Dr Ozinsky, in his capacity as acting head, managed the running of the Department.

The retirement of Professor Harrison in 1987, brought to a close, another chapter in the Department and an era in the advancement of anaesthesia internationally. The Department and Cape Town, as a centre, was firmly placed, not only in Africa but in the world of Anaesthesia. His successor was to be Professor MFM James of the University of Witwatersrand's Department of Anaesthetics.

In this year, another loss was the departure for a new career in Rotterdam, the Netherlands, of our Departmental Academic Secretary, Ms Johanna Garschagen, who had served us with distinction for the past eight years. Her affability, charm and competence were readily acknowledged. She was succeeded by Mrs Shirley Green.

PROFESSOR GAISFORD GERALD HARRISON

MD(UCT), DSc.(Med)(UCT), DARCP(Lond),RCS(Eng) FFARCS(Eng), FRCA, FFARACS(Hon), FANZCA, Life Fellow (UCT)

Gaisford Harrison was born in Cape Town on 5 October 1926 and schooled at St Aidan's College, Grahamstown. He graduated MBChB from the University of Cape Town in 1948 and, after a brief spell in general practice, commenced training in anaesthesia at Groote Schuur Hospital in 1951. He obtained the FFA RCS (Eng) 1955 and subsequently embarked on a career in academic anaesthesiology. His base for this has always been the Department of Anaesthesia at the UCT and GSH. As mentioned earlier, he was appointed associate Professor in Anaesthesia in the Department in 1973 and in 1981 appointed to the Chair

of Anaesthesia in this Faculty, a post from which he retired in 1987. As Emeritus Professor he has continued to be actively involved in teaching, research and publication.

His endeavours in research resulted in numerous scientific contributions in many fields related to anaesthesia (100 peer-reviewed papers), with the theme of increasing the safety of anaesthetic practice. He is best known for his seminal work in the field of Malignant Hyperthermia in which he made two contributions of immense importance. The first was the development of a valid animal model of the human condition which could be used for research into the life-threatening complications of anaesthesia associated with this pharmacogenetic myopathy. Secondly, he was the first person to demonstrate, in this model that treatment of a Malignant Hyperthermia episode with the intracellular calcium antagonist, dantrolene, was life-saving, reducing the mortality of attacks from 70 – 80% to virtually zero, provided the agent is administered in time. Dantrolene is now the standard agent used for the management of Malignant Hyperthermia. These critical discoveries, together with further research into the biochemical basis of the myopathy and its pattern of inheritance, have resulted in his becoming recognized as a world authority in this field.

In the field of epidemiology of anaesthesia-related mortality, initially the subject of his doctoral thesis (MD), 1966, Professor Harrison's work has become a standard reference for the incidence and causes of such mortality. His studies have demonstrated the great increase in the safety of anaesthesia for the patient that has occurred over the thirty year span of this study.

In addition to this, he has contributed many scientific publications in the field of anaesthetic drug metabolism, which have resulted in his being recognized as an expert in the field of porphyria in relation to anaesthesia. In recognition of this, the University of Cape Town elected Professor Harrison a Lifetime Fellow of the University in 1977 and conferred the degree of Doctor of Science in Medicine on him in 1993

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Not all his energies were directed solely to research. Gaisford Harrison was an active member of the South African Society of Anaesthetists, having served on the Executive of the Cape Western Branch for



PRESENTED TO
PROFESSOR GAISFORD G. HARRISON

In appreciation of his contribution to Anaesthesia,
both in clinical practice and in the field of re-
search whilst a member of, and ultimately
Professor and Head of the Department of
Anaesthesia, University of Cape Town and Groote
Schaar Hospital.

WITH GRATITUDE FROM THE MEMBERS OF THE CAPE
WESTERN BRANCH OF THE SOUTH AFRICAN SOCIETY OF ANAESTHETISTS

CHAIRMAN Peter Gordon
SECRETARY Clive Daniel
DATE 21.4.1988

Linda Sealy, 1988

many years, in addition he was also a member of the National SASA Executive Committee, Chairman of the Jan Pretorius Scientific Research Fund in 1985 / 86 as well as Chairman of the Association of University Anaesthetists in the same year. In 1988, SASA President Morrell on behalf of SASA Cape Western Branch presented Professor Harrison an illuminated address honoring his contributions to anaesthesia both in clinical practice and research

From 1964 onwards he has held various positions in the Faculty of Anaesthetists of the College of Medicine of SA and was member of the College Council from 1971-1986. He was Delegate to the International Joint Conferences of Boards and Faculties of Anaesthetists for its Inaugural Meeting, as well as the 2nd, 3rd, 4th, 5th and 6th meeting. In an effort to escape any hint of exclusiveness, it was decided by consensus to change the name of the body to 'Conference of International Reciprocity Examining Boards of Anaesthesia – CIREBA',⁷³. In 1984 Professor Harrison was appointed Chairman- *ad hoc* Committee on Accreditation of Training in Critical Care Medicine.

Notes and references:

- 1 Inaugural Lecture. University of Cape Town. New Series No 74 16 September 1981.
- 2 Harold Randolph Griffith was born in Montreal, Canada on 25 July 1896. He attended McGill University from which he received his MDMS in 1922. He was anaesthetist-in-chief of the Queen Elizabeth Hospital of Montreal since 1924 and consultant in anaesthesia in the Montreal Neurological Institute since 1952. The Henry Hill Hickman Medal of the Royal Society of Medicine was presented to him in 1956 and the Distinguished Service Award of the American Society of Anesthesiologists was given to him in 1959. He died in 1985. See : Gillies DMM, Earl Wynands J. The Contribution of Harold Randolph Griffith (1896-1985) to anaesthesia. The History of Anaesthesia. International Congress and Symposium Series No 134. 1988: 614-617.
- 3 Curare is an arrow poison used by the indigenes of South America. In 1596 Sir Walter Raleigh mentioned the arrow poison in his book 'Discovery of the Large, Rich and Beautiful Empire of Guiana'. In 1825 Charles Waterton (1783-1865) introduced curare into Europe and in 1850 Claude Bernard (1813-1878) showed that curare acts by paralysing the myoneural junction.
- 4 Griffiths HR, Enid Johnson G. The Use of Curare in General Anaesthesia. *Anesthesiology* 1942; 3: 418-420.
- 5 Intocostrin was a purified extract of Unauthenticated Curare manufactured by ER Squibb and Sons. The crude curare of the South American forests contains numerous toxic substances, but this was refined so that the elements of cardiac and respiratory depression are removed. This purified curare was used for several years experimentally in psychiatric hospitals to prevent traumatic complications in convulsive shock therapy. See- Foundations of Anesthesiology. Faulconer A, Keys TE. 1965: 1196 and ^{p19}
- 6 Claude Bernard (1813-1878), the father of experimental medicine, was born in St Julien, Rhone in France, the son of a wine grower. He studied medicine in Paris, devoting his energies to anatomy and physiology. In 1833 he was appointed as an intern to the Hôtel – Dieu where he served under François Magendie, the leading French physiologist. In 1843 he submitted his thesis for the doctorate in medicine. After this he devoted his whole life to teaching and medical research.
- 7 Sir Walter Raleigh (c 1554-1618) is one of the famous names in British history. An English navigator, Devonshire-born, he was educated at Oxford. In 1581 he was presented at court where Elizabeth I was impressed by him and conferred many honours on him. In 1585 he led an expedition to the unknown parts of North America. Some of his followers were settled on the eastern coast – the area was named Virginia. From here he brought back tobacco and potato plants to England. In 1595, in his voyage of discovery, he explored the coasts of Trinidad and Guiana and sailed up the Orinoco River in search of gold.
- 8 Ether was originally prepared by Valerius Cordus (1515-1544) in 1540 who first gave a clearly recognisable description of sulphuric ether and its preparation, calling it *sweet oil of vitriol*. It was used clinically for anaesthesia by WE Clarke of Rochester, New York and Crawford Long of Jefferson, Georgia in 1842, but they did not publish. It was introduced to the profession by WTG Morton, a dentist, in Boston on 16 October 1846. The first account of its pharmacological and clinical properties appeared in John Snow's book *On the Inhalation of Ether Vapour*, published in 1847.
- 9 Chloroform was prepared by Justus von Leibig in 1831 in Germany, by Samuel Guthrie in the USA and by Souberian in France. Jean-Baptiste Dumas described its physical and chemical properties in 1834 and gave it the name chloroform. Its anaesthetic properties were discovered by Flourens in 1847. It was introduced to clinical practice and popularised by Simpson in Edinburgh in November 1847.
- 10 Cyclopropane was first synthesised by von Freund in 1882. Its anaesthetic properties were shown by Lucas and Henderson in Toronto, in 1929. Waters and his colleagues reported on its use in 1930. It is a colourless gas with a sweet smell but very explosive with oxygen. It was supplied in aluminum-alloy cylinders, orange in colour.
- 11 Gathard JWW. Anaesthesia for Cardiac Surgery and Allied Procedures. 3rd Edition Blackwell Scientific Publications 1987: 124-127.
- 12 Yonezawa T & Wakusawa R. A History of Hypothermic Anaesthesia by Surface cooling in Japan. Anaesthesia Essays on its History. Ed. Ruprecht J et al. 1998 2nd Printing. : 184-188.

- 13 Ibid. Astrup P. The Early Development of Bloodgas and Blood Acid-Base Measurements. : 176-183.
- 14 Andrews PWS, Brunner E. The Life of Lord Nuffield. A Study in Enterprise & Benevolence.
- 15 The DA RCP(Lond) RCS(Eng) was instituted in 1935.
- 16 Henry K Beecher, sifting through 600,000 cases from ten surgery units, elegantly showed that combined anaesthesia with curare was associated with a higher mortality, but his statistics ignored the persons using it. His news impeded the use of curare and the development of anaesthesia for an entire decade. See : Anesthesia. Discovery, Progress, Breakthroughs. Werner Hügin. Roche 1989: 121. ISBN 3-907946-04-9
- 17 Orenstein AJ. Report of Committee on Deaths under Anaesthesia. *South African Medical Journal* 1936; 10: 729.
- 18 Harrison GG. Death due to Anaesthesia. MD Thesis 1966. UCT Medical Library.
- 19 Kok OVS, Mullan BS. Deaths associated with Anaesthesia and Surgery. *Transactions of the College of Physicians, Surgeons and Gynaecologists of South Africa*. 1963; 7: 22.
- 20 The sub specialty Critical Care was instituted in 1994.
- 21 The number of specialist anaesthetists / anaesthesiologists registered in 2000 was 1074, out of a total of 16500 doctors in South Africa in that year.
- 22 The population of the Cape Province (covering nearly 60% of the total area of the RSA) in 1960 was 5,308,839. The population of Cape Town for 1960 was 731,484. The population estimate for the Western Cape Province which excludes the Northern Cape Province, for 2000 is 4,178,598 out of a total population for the Republic of SA of 43,291,441. The latter figures were supplied by Statistics SA.
- 23 Robbins BH. Preliminary studies of the anaesthetic activity of fluorinated hydrocarbons. *Journal of Pharmacology, Experimental and Therapeutic* 1946; 86: 197.
- 24 Johnstone M. The human cardiovascular response to Fluothane anaesthesia. *British Journal of Anaesthesia* 1956; 28: 392.
- 25 The usage of Halothane at Groote Schuur Hospital was :

1998-1999	448	bottles of 250ml each.
1999-2000	400	“ “
2000-2001	200	“ “
- 26 Barton JDS. Jaundice and halothane. Letter. *Lancet* 1959; 276: 1097.
- 27 Burnap TK, Galla SJ, Vandam LD. Anesthetic, circulatory and respiratory effects of Fluothane. *Anesthesiology* 1958; 19: 307.
- 28 Virtue RW, Payne KW. Post operative death after Fluothane. *Anesthesiology* 1958; 19: 562.
- 29 Vourc'h G, Schnoebelen E, Buck F, Fruhling L. Hepatonéphrite aiguë mortelle après anesthésie comportant de l'halothane (Fluothane). *Anesthesia & Analgesia* 1960;17: 466.
- 30 Bunker JP, Blumenfeld CM. Liver necrosis after halothane anaesthesia. *New England Journal Of Medicine*. 1963; 268: 531
- 31 Lindenbaum J, Leifer E. Hepatic necrosis associated with halothane anaesthesia. *New England Journal of Medicine* 1963; 268: 525.
- 32 Inman WHW, Mushin WW. Jaundice after repeated exposure to halothane : An analysis of Reports to the Committee on Safety of Medicine. *British Medical Journal* 1974; 1: 5-10.
- 33 Mushin WW, Rosen M, Bowden DJ, Campbell H. Halothane and Liver Dysfunction : A Retrospective study. *British Medical Journal* 1964; 2: 329.
- 34 Mushin WW, Rosen M, Jones FV. Post-halothane jaundice in relation to the previous administration of halothane. *British Medical Journal* 1971; 2: 18.
- 35 Krantz JC, Carr C, Lu G, Bell FK. The anaesthetic action of trifluorethyl vinyl ether. *Journal of Pharmacology, experimental Therapeutics*. 1953; 108: 488.
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- 51 Eugene Dowdle graduated MB ChB (UCT) in 1952 and in 1960 was appointed lecturer in the department of medicine. He received a UCT Fellowship in 1968. Professor Dowdle (Clinical Science & Immunology) retired at the end of 1993.
- 52 Stuart J Saunders graduated MBChB (UCT) in 1953. He joined the department of medicine as a full time lecturer in 1961. Hereafter he was Professor and Head of the Division of Medicine from 1972, taking over from Professor Lennox Eales, until August 1980, when he left to take up the appointment as Principal designate of the University of Cape Town. He was succeeded by Professor Solly Benatar who was appointed to the Chair of Medicine in the same month. His role as Vice Chancellor of the University during the turbulent 1980's is reflected in his book which is an account of this period. Saunders S. 'Vice-Chancellor on a tightrope.' A personal account of climactic years in South Africa. David Philip Publishers. Cape Town. 2001 ISBN 08 6486 4582
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- 69 Professor Jackson-Rees modified the Ayres T-piece system by attaching a tube and open-ended rebreathing bag to the side arm . He popularised this system, which was a simple, cheap, lightweight, low resistance, minimal dead space system which also allowed for manual ventilation if the open end was pinched off. It is still a favourite amongst anaesthetists, in Cape Town and elsewhere to this very day. A great disadvantage was the inability to devise some satisfactory form of scavenging for this device.
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- 71 Dr David Arnold Posel subsequently joined the Department of Anaesthesia, qualified FFA(SA) in 1988 then entered private practice in 1990. He married Lisa Chin, another member of the Department.
- 72 *UCT Monday Paper* 25 June 1993. ‘The DSc(Med) is awarded in recognition of the numerous scientific contributions which Gaisford Harrison has made in many fields related to anaesthesia with the theme of increasing safety of anaesthetic practice.....’
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CHAPTER VII

THE ERA OF 'MAGNESIUM' MIKE JAMES

With the retirement of Professor Harrison in 1987, applications were invited for the Chair of Anaesthesia, University of Cape Town. Five applications were received and of these Professor Michael Frank Mansel James, Professor of Anaesthesia, University of Witwatersrand and Hillbrow Hospital,¹ was appointed by the University Senate on 01 July 1988, at the youthful age of 42yrs.

PROFESSOR MICHAEL FRANK MANSEL JAMES

Full of vigour and enthusiasm, he hailed originally from Zimbabwe² where he was Chairman of the Department of Anaesthetics, University of Zimbabwe (Rhodesia) from 1982-1984. Mike was born on 8 March 1946 in Bulawayo, Rhodesia. He schooled at Northlea High School, Bulawayo and in 1965 joined the University College of Rhodesia and Nyasaland Medical School, which was then under the auspices of the University of Birmingham. He was awarded a Nuffield Trust Scholarship to Birmingham University in 1970. As a medical student he was actively involved in several University committees ; Editor, Rag Treasurer and member of the SRC. Aside of this his prowess in sports particularly cricket, hockey and badminton are noteworthy, having been half blue, full blue and Captain in one or the other and in 1970 was voted University Sportsman of the Year. Thirty years later , he still has these delusions of being a great spin bowler!

After an internship in Medicine and Surgery at Harare³ Hospital in 1971, he spent the following six months undergoing national service as a Captain in the Rhodesian Army Medical Corps and the latter part of 1972 as a SHO in Anaesthetics at Harare Hospital. He continued as a registrar in anaesthetics here and in 1973 obtained the Primary FFA (SA). In January 1975 he passed the final FFARCS (Eng) at the Southampton General Hospital. Mike returned to Rhodesia in April 1975 as a lecturer in anaesthetics working his way up the ladder until he was appointed Chairman, Department of Anaesthetics, University of Zimbabwe in 1982. He was, in addition, Consultant in charge of Intensive Care units, Harare Hospital and Andrew Fleming Hospital (later Parirenyatwa Hospital).



When the opportunity arose, Mike applied for the position of Professor of Anaesthesia & Chief Anaesthetist, University of Witwatersrand & Hillbrow Hospital, a post he occupied from October 1984 till June 1988. This was the 3rd Chair of Anaesthetics at Witwatersrand University.

He is, without doubt, a 'hands on' anaesthesiologist with extensive experience in the type of medicine and trauma that South Africans are accustomed to. With the decant of the Department from the Old Main Building to the New Main Building in June 1989, his organisational and administrative skills were put to good use.

SERVICES

It is perhaps opportune and appropriate to review the service structure of the Department as it stood in 1989.

The staff complement consisted of a Head of Department – Professor James; Emeritus Professor Harrison (in a part time capacity), associate Professor Ozinsky and 80 members consisting of forty-one Specialists and forty-one Registrars. In addition to the Department's major clinical service, which is the administration of anaesthesia, it is involved in four other special services:

1. Trauma Unit
2. Intensive Care Service:
 - a) Acute Respiratory Intensive Care Unit (with the Department of Medicine)
 - b) General Surgical Intensive Care Unit (with the Department of Surgery – a loaned post)
 - c) Cardiac Surgical Intensive Care unit (a loaned post)
3. Total Parenteral Nutrition Unit
4. Pain Relief Clinic

Apart from the main surgical theatres in the Old Groote Schuur Hospital with 21 operating theatres (bear in mind that the theatres in the New Hospital only became operational in early 1990), an anaesthetic service was also provided for the following in this hospital:

Trauma Unit (2 theatres)

OE (OPD) – Outpatient theatre

OG (Ortho)- Outpatient and minor ops, manipulations and plasters etc. under general anaesthesia.

Emergency – abscess theatre

B3 Xray and vascular suite

CT Scan Xray Unit

B11 Cardiovascular suite, occasionally.

Division of Radiation Medicine UCT

In addition there was a 24 hour Obstetric Anaesthesia service at

Groote Schuur Hospital Maternity Centre MF

Mowbray Maternity Hospital

Peninsula Maternity Hospital

Somerset Hospital (Shipley)

St Monica's Maternity Hospital ⁴

Several peripheral hospitals where surgery was conducted, were attached to the Department:

New Somerset Hospital

Red Cross Children's Hospital

Princess Alice Orthopaedic Hospital ⁵

Maitland Cottage Hospital

Valkenberg Psychiatric Hospital (anaesthesia for ECT)

William Slater Hospital (non surgical attachment to the Pain Relief Clinic)

Woodstock Hospital Burns Unit

GF Jooste Hospital (support services)

Livingstone Hospital – a satellite institution in Port Elizabeth.

ANAESTHETICS ADMINISTERED DURING 1988/89.

Groote Schuur Hospital

Categories	number	duration > 120 minutes
Trauma	2898	373

Emergency operations	1128	
B9 Surgical	4560	1052
OE (OPD)	1148	33
B5 Urology	1971	410
B6 Eyes	2125	137
C11 Cardiac	710	642
C11 Thoracic	1046	262
C6 ENT	3392	302
C9 Orthopaedic \	3066	1450
OG Orthopaedic	12	0
D11 Gynaecology	4480	211
J4 Neurosurgery	1194	640

Other hospitals:

MF Maternity GSH	2514	40
Mowbray Maternity	1105	0
Peninsula Maternity	1308	0

Other areas eg.

B3 Vascular, xray , CT scan

OB minor eyes, ECT, OE 102

St. Monica's, Maitland etc 2510
subtotal 35167

Princess Alice Orthopaedic	1110
New Somerset Hospital	3238
Red Cross Hospital	<u>11044</u>
total	50559

Data extracted from the Groote Schuur Hospital Region Annual Report 1988 / 89

Having had no prior attachment to the University of Cape Town, apart from being an invited Visiting Professor and Lecturer, Professor James, fresh to this institution, was therefore able to proceed with the organization of the new Department in a strictly businesslike fashion. With the drastic fiscal and staff cuts by the Department of Health, only a limited number of anaesthetists were available to service so many surgical lists. As a result, some lists had to be curtailed. He also stipulated that the Friday academic afternoon was a non-negotiable matter and for the first time, all members of the Department, except those on emergency duty, were able to participate in the tutorials and make presentations. The afternoon was also recognised as an accredited Continuing Professional Development activity. As a result many registrars were motivated for research and publications. These 'in-house' tutorial and teaching programmes were a continuation of a system, commenced on a regular basis, since 1980.

On the 07 June 1989, Professor James was invited by the Vice Chancellor and Principal of the University of Cape Town, Dr SJ Saunders, to present his Inaugural Lecture at the Leslie Lecture Theatre, Upper Campus.

INAUGURAL LECTURE EXPANDING HORIZONS IN ANAESTHESIA

(author's note: Since Professor James' address covers to a large extent, the history of anaesthesia, and since knowledge of this subject is both part of the curriculum as well as part of the requirement for the fellowship of anaesthesia examination, it was deemed fit to include this virtually *in toto*)

"Up to the middle of the 19th Century the operating theatre was a veritable Chamber of Horrors. Patients requiring life-saving surgery were strapped to a rough wooden table or held down by strong assistants. It was a place of pus, blood and agony. Some form of sedative usually in the manner of alcohol or laudanum or both was given to the patient in a vain attempt to produce some reduction in his suffering but the moment surgery began, pain cut through his dulled senses as incisively as the surgeon's knife cut into his flesh. A multitude of agents had been used for centuries to minimise the pain without success and the prospect of oblivion seemed as remote then as it had done in Shakespeare's time. The search for a potion that would produce the sweet sleep ended dramatically on the 16 October 1846 ⁶ when William Thomas Green Morton administered ether by inhalation to a patient, Gilbert Abbott, who was about to undergo removal of a tumour of the jaw."..... Professor James hereafter narrated the early history of anaesthesia.

....."Anaesthesia was taken up with enthusiasm in England but it soon became apparent that ether was no panacea. Its suffocating vapour was irritant to inhale and the induction of anaesthesia was a lengthy process. Ether was also inflammable and since open flames were common place in the operating theatre of those days, mishaps were not unknown. A noted English Obstetrician, James Young Simpson, ⁷ in his search for a better agent for use in obstetrics, discovered the use of chloroform as an anaesthetic agent. Although it was inherently more dangerous, chloroform became more popular than ether because of its greater potency, which allowed easier administration and more rapid induction of anaesthesia, using nothing more complicated than a piece of cloth draped over the nose and mouth and a dropper bottle to administer the chloroform onto this rag. This rag and bottle technique remained the standard of anaesthetic

practice for the next seventy or eighty years. The eminent London physician, John Snow,⁸ became the first man to attempt some sort of scientific investigation into these new anaesthetic agents and their methods of administration. He devised many new pieces of apparatus for the safer administration of graduated amounts of ether and chloroform and described how to diagnose and maintain safe levels of anaesthesia. Following his death in 1858, at the early age of 45, he was succeeded by his equally influential pupil, Joseph Clover.⁹ These two men set the standards of anaesthesia in England and ensured that in England, at least, the administration of anaesthesia remained for the most part in the hands of medical men and ultimately became a specialist subject in its own right.

Sadly this was not the case in the United States of America. The apparent ease of administration of anaesthesia and a failure of the appreciation of its great dangers led to the relegation of the task of administration of anaesthesia to, at best, junior medical members of the surgical team, nursing staff and even, on occasion, non medically qualified personnel.

It soon became apparent, however, that the procedure was not entirely safe and as early as 1847 reports of deaths occurring in relation to the administration of anaesthesia had appeared in America, England and Europe. The first reported and probably best known of these deaths associated with chloroform anaesthesia was that of Hannah Greener,¹⁰ aged 15 years, who died on 28 January 1848 during anaesthesia for nothing more serious than the avulsion of an ingrowing toenail. These deaths led some surgeons to speculate that anaesthesia was actually harmful, and that pain was an essential to the recovery of the patients from the operation.

Apart from the introduction of cocaine as a local anaesthetic, the advances in anaesthetic technique over the next fifty or sixty years were minimal. Ether, chloroform and nitrous oxide, between them appeared to be adequate for most of the demands being made at the time. The state of warfare is generally injurious to individuals but is frequently beneficial to mankind in terms of the advances it stimulates. Anaesthesia was no exception and the specialty received a major boost as a result of the demands imposed by the management of wounded soldiers in the First World War. Henry Boyle, who was

fascinated with the potential of nitrous oxide, developed the first continuous flow machine for the delivery of known mixtures of nitrous oxide and oxygen and when, to this piece of apparatus was added the breathing circuit invented by Ivan Magill, the first modern anaesthetic apparatus was born. In comparison with the relative quietitude of the first seventy years of anaesthesia, the next three decades saw dramatic advances in the science of the specialty. The American, Dr Ralph Waters, later the first Professor of Anaesthesia in the world, introduced carbon dioxide absorption and cyclopropane. Thiopentone, which probably stands supreme as the most successful single drug ever introduced into medical practice was first used by Lundy in 1934 and has remained the standard intravenous induction agent ever since.

In 1937, the first Chair of Anaesthesia in Europe was established at Oxford with Professor RR Macintosh as the first Nuffield Professor. A plethora of advances followed in almost bewildering succession with improvements in endotracheal intubation, controlled ventilation of the lungs and the introduction of a number of new agents including pethidine ¹¹ and trichlorethylene.¹²

Nevertheless, one of the major problems in anaesthesia remained. In order to provide adequate surgical access into the abdomen, deep and potentially dangerous levels of anaesthesia were required to produce sufficient relaxation of the muscles of the abdominal wall. The answer had potentially been available for longer than anaesthesia itself. The South American arrow poison, curare, was first described by Ascorio Sfortza in "De Orbo Novo" in 1516 and confirmed by Sir Walter Raleigh in 1595. In 1812 an English curate, Charles Waterton, ¹³ demonstrated that curare was not, in itself, lethal when he maintained ventilation in a paralysed donkey by means of a pair of bellows. The donkey not only recovered fully but lived to a ripe old age! Two years later, he and Brode suggested that this drug had a toxic effect on the myoneural mechanism but it was not until some forty years later that Claude Bernard proved, by his classical experiments, that this was, in fact, true. Despite the subsequent isolation of the active principle d-tubocurarine, it was not until 1942 that Griffith & Johnson ¹⁴, in Canada first used curare for the production of relaxation in anaesthesia. This dramatic advance resulted in the development of the concept of the triad of general anaesthesia in which the essential components of hypnosis, analgesia and muscle relaxation could be achieved by separate agents, with a sharp reduction in anaesthetic mortality. The

introduction of relaxants also compelled anaesthetists to become familiar with methods of controlling ventilation, a skill which was later to prove useful in the development of intensive care units. The revolution from open drop ether to modern anaesthesia was completed by the introduction of halothane in 1956.

Hand-in-hand with these dramatic advances in anaesthesia, went equally dramatic advances in surgery. As anaesthetic skills improved, more and more extensive surgical procedures could be contemplated and patients with increasing severity of underlying intercurrent illnesses could be accepted for anaesthesia. Indeed the evolution of anaesthesia from the dangerous days of open drop ether, to the modern situation in which patients, at the extremes of age with multiple organ dysfunction may be considered acceptable risks for anaesthesia, could be described as a progression from rags to ritches.

Perhaps these dramatic advances, in themselves, highlighted the fact that anaesthesia was a potentially lethal iatrogenic disease and in the immediate post-war years, concern about anaesthesia-related mortality increased rapidly. In 1954 the *Lancet* commented editorially that "the most obvious risks of an operation are those associated with anaesthesia". The success of what may be termed the modern period of anaesthesia may be gauged by the fact that it is now assumed that patients ought not to die from anaesthesia related complications. My immediate predecessor Professor Gaisford Harrison, has been studying the incidence of anaesthetic contributory deaths in Groote Schuur Hospital since 1956. Over the thirty year period of the study, deaths due to anaesthesia have declined from an incidence of 4.3 per 10,000 anaesthetics to a figure of 0.7 per 10,000, despite the fact that there has been a considerable increase in the number and complexity of anaesthetics administered over this time.

Not only has there been a marked decrease in both surgically related and anaesthetically related mortality but the pattern of these deaths has also changed. While the absolute number of deaths has declined the proportion of deaths due to respiratory problems has increased while that due to failures of circulation have decreased in frequency. This almost certainly reflects the fact that our knowledge of circulatory function and the drugs and techniques available to manage circulatory failure have increased

dramatically whereas the maintenance of respiratory function requires less readily learned manual skills and constant vigilance. Whilst drugs and resuscitation techniques have rapidly improved, the learning of manual skills is the same old time consuming business. It is also of interest to note that deaths occurring in the postoperative period have declined markedly over this time indicating the enormous impact that postoperative critical care has had on survival from major surgery. Given that anaesthetic deaths today are probably related to such human factors as manual skills and levels of vigilance, a rate of less than 1 in 10 000 anaesthetic deaths is approaching an almost irreducible minimum in our present state of knowledge. Indeed, the improvement in the safety of anaesthesia over the last thirty years is reflected by the comment of Cooper, Newbower & Kitz in *Anesthesiology*, 1984 that "the most insidious hazard of anaesthesia today is its relative safety." The implication of this latter statement was that because improved techniques and better drugs, and, particularly, advances in physiological monitoring had dramatically advanced the cause of anaesthetic safety there was a serious risk of underestimating the potential of each anaesthetic to have a tragic outcome. It is important to realise that anaesthesia is not inherently safer now than it was in the early 1950's. Halothane is not a safer drug than was ether, and the modern relaxants, which may have fewer side effects, are just as likely to cause death by ventilatory failure as was curare. The improvement in anaesthetic mortality has been largely due to improved understanding of the basis of anaesthetic practice, and better monitoring of the anaesthetised patient. It is for this reason that modern anaesthetic practice continues to emphasise the essentials of the basic sciences of physiology, pharmacology and patient monitoring. Indeed the skill and vigilance of the modern anaesthetist can be viewed as the sole bulwark between survival and the grave.

As a result of the demands of patient safety, anaesthesia has broadened its horizons enormously from the mere provision of sleep. The altered role of the anaesthetist in the operating theatre is dramatically highlighted by the controversy that surrounded the future of academic anaesthesia when the first Nuffield Professor at Oxford, Professor Robert Macintosh approached retirement in 1964. This Chair had been established (1937) in the face of considerable opposition and there were those who felt that anaesthesia was not a sufficiently broad subject to justify the retention of a full Chair. After much heated debate it was decided to retain the Chair in Anaesthesia with the proviso that study should not be confined to anaesthetics

and methods of administering them but should be extended to the maintenance of homeostasis in the unconscious patient. To today's anaesthetist that is an incredible statement. To today's practitioner of the art, the maintenance of the triad of anaesthesia is based entirely on the solid foundation of physiological homeostasis and the main thrust of anaesthetic research over the last twenty five years has been in that direction. The modern anaesthetist is expected to maintain as near normal physiology as conditions permit and, in addition, to be sufficiently expert in the management of acute medical problems, to provide prompt and accurate management of any life-threatening emergency that may arise in the course of a surgical procedure. All these skills have translated readily into the critical care environment.....

.....In order to maintain physiological homeostasis in the operating room despite the development of ever more daring and extensive surgical procedures, anaesthetists have had to extend considerably their knowledge of normal and pathological physiology. One of the most controversial debates in this area focuses on the management of fluid balance in the surgical patient. In the middle fifties, Moore with regard to the physiological response to trauma and consequent avid conservation of salt and water by the body, introduced the concept of the harmlessly parched patient which, almost certainly, resulted in a number of patients being pushed needlessly into post-operative renal failure. In the early sixties Shires turned the debate around as a result of his realisation of the relevance of the loss of body fluids into the oedematous swelling that occurs around damaged tissue. Unfortunately, he overestimated the size of what he defined as 'the third space' and his researches resulted in the administration of large, often excessive, quantities of fluid and almost certainly had the consequence of producing pulmonary oedema in a number of patients. Since the administration of fluids intraoperatively was primarily the function of anaesthetists it was inevitable that anaesthesia should take a leading role in the development of this controversy which has now extended further into the controversy between the use of crystalloids and colloids. It is also not surprising that several Chairs of Physiology have been filled by anaesthetists.

The challenge of providing appropriate fluids, electrolytes and colloids also aroused interest in the provision of appropriate nutritional substances during and immediately following surgery. This debate, too, has swung from one extreme to the other with patients in the early fifties being allowed virtually to die of

starvation in hospital and at the other extreme, with the suggestion that intravenous feeding should commence at the start of anaesthesia for major surgery. Knowledge of the basic physiological processes involved in critically ill patients and an understanding of fluid balance requirements, coupled with the skills required in the operating theatre of the placement of central venous lines resulted in anaesthesia playing a prominent role in the provision of intravenous feeding services in areas outside of the operating theatre and critical care units.

.....In the last forty years there has been an explosion in the number of drugs available in the anaesthetic armamentarium..... Today's anaesthetist is, therefore, in addition to his other skills, also an accomplished, if limited, pharmacologist.....

Anaesthesia is no longer regarded as the major hazard to life associated with a surgical procedure. Anaesthetists can now offer the maintenance of adequate physiology during almost every conceivable insult to the body that treatment of his pathological state may require. What more can this discipline do? What further provisions can we make for our patients to improve not only their chances of survival but also to minimise pain and suffering, to improve the quality of recovery from anaesthesia and to maximise the chances of surgical success? The remarkable and satisfying reduction in mortality that is being shown in the studies by Professor Harrison and others, should not, however, be the cause of complacency. Although the mortality from anaesthesia alone has been reduced to less than 1 in 10 000 anaesthetics, that figure still implies that in South Africa alone approximately 100 people will die every year simply because they receive an anaesthetic quite apart from the mortality of their associated conditions. The studies of anaesthetic mortality indicate that somewhere in the region of 80% of these deaths, contain in their causation, avoidable factors. Although the mortality rate is extremely low, clearly it could be made even lower and this is one of the challenges that faces anaesthesia in the future. Since it is unlikely, given the nature of human frailty, that human error can be reduced to a level much below that currently obtained, the requirement is to provide monitoring and self testing systems which will detect the possibility that human error has occurred and warn of potentially life-threatening events in time, for these events to be prevented from accumulating into a tragic conclusion. Patient monitoring has advanced considerably from the days

when a finger on the pulse was all that was available, and the modern anaesthetist is often surrounded by an array of measuring instruments which monitor almost every body function. One of the major advances in this area of the last few years has been the development of pulse oximetry which measures, not only the existence of pulsatile blood flow in the peripheries, but, in addition, measures the oxygen content of peripheral blood, thus significantly reducing the risks of undetected hypoxia. It will be interesting to see, in the future, what impact this device has on anaesthetic related mortality. A recent article and editorial in *Anesthesiology* for April 1989 suggests that introduction of minimal monitoring standards has, indeed, produced a reduction in mortality. There are more subtle areas in which improvement of anaesthetic skills may contribute to patient safety..... There are vast areas for further study in the fields of individual organ protection during surgery, particularly vascular surgery, and in the fields of minimising subtle influences that the anaesthetic may have on the body's defence mechanisms. We are currently studying, in our laboratory, the influence that anaesthesia may have on the body's defence mechanisms against infection^P
358, p 402, p 412 It is too early to draw firm conclusions but early results show that there may be a significant difference between the anaesthetic agents in the way in which they influence white cell function.

For all its apparent precision, anaesthesia remains a remarkably inexact science. We still have no concept as to how anaesthetics work and have only the vaguest notions as to the effects of anaesthetics on the brain. Until recently, attempts to answer these difficult problems have essentially relied on measurement of the electrical activity of the brain using EEG. Unfortunately, this machine is technically difficult to use in the theatre, the traces are difficult to interpret, and can really only be evaluated after the event. With modern computer technology, techniques now exist for real-time analysis of the EEG to produce intelligible patterns which have some relevance to the conscious state and the level of cerebral oxygenation. In addition, there are techniques such as the use of evoked potentials which allow us to study the influence of anaesthetics on individual sensory pathways. Combinations and extensions of these techniques offer considerable promise in the fields of cerebral protection and of the assessment of anaesthetic depth. Whether or not the ultimate goal of exact measurement of anaesthetic depth with possible feed back servo-control mechanisms regulating the administration of anaesthetic agents to the patient is achievable, remains to be seen.

Improved understanding of the physiological processes involved in anaesthesia, will enable us to design progressively more specific drugs, which will target more accurately the systems we wish to affect, and have fewer side effects. The possibility of this has already been demonstrated in the use of ever more accurate neuromuscular blocking agents and more specific opiate receptor antagonists. Recently, the first major challenge to thiopentone, in the field of induction agents, has been provided by the advent of propofol. Although this drug is not a more specific agent, and has as many side effects as does thiopentone, its pharmacokinetic properties represent a considerable advance. In the field of opiate receptor agonists we are awaiting eagerly the development of a new single receptor specific agent which will provide analgesia, free of the spectre of respiratory depression. Greater understanding of the mechanisms of sleep and unconsciousness may allow us to provide an absence of awareness without the concurrent, apparently inevitable, depression of cardiovascular function that is the routine accompaniment of today's anaesthetic agents. Better understanding of the function of transmitter and receptor systems will allow us to manipulate with great precision, the neurological pathways which govern sensation and autonomic nervous system responses. There are some glimpses into the future which suggest that this type of control may be possible. Alpha-2 adrenergic agonist agents have been shown to reduce the requirements for anaesthetic drugs. Since alpha-2 adrenergic stimulants are not in themselves anaesthetics, this suggests that the alpha-2 receptor may, in some way, be associated with the mechanisms regulating wakefulness and raises the possibility of selectively inhibiting consciousness while leaving the rest of the nervous system intact. At a peripheral level the control of many of the autonomic nervous system responses which are currently disadvantageous to the patient could be controlled by the use of specific agents which selectively inhibit the release of neurotransmitter substances. That this may be possible has been shown by my own studies in which the use of a relatively crude substance, magnesium, has enabled us under certain circumstances to control the release of catecholamines from adrenergic nerve terminals¹⁵. Unfortunately, such a non specific compound such as magnesium blocks not only the unwanted release of catecholamines but also inhibits the release of other transmitter substances whose presence we may desire. More specific agents in this regard should be sought and are likely to be forthcoming.

Finally, the development and acquisition of this wide range of skills by the modern anaesthetist requires a revision of his role in today's world. The apparent ease with which administration of anaesthesia could be carried out frequently led to the delegation of anaesthesia to people in very subordinate positions with a consequent lowering of the status of anaesthetists. As we have seen, growing awareness of the hazards associated with anaesthesia stimulated the development of a more complete anaesthetic specialist whose skills extended beyond the administration of anaesthetic agents and regulations of their effects to control of total homeostasis of the patient during surgery. This then led anaesthesia beyond the confines of the operating theatre into the spheres of critical care medicine, parenteral nutrition, pain therapy, physiology and pharmacology. But perhaps that evolution is not yet complete. Anaesthetists spend a large proportion of their training period learning how to assess patient fitness for anaesthesia, how to manage their intercurrent diseases in order to maximise their physiological status prior to surgery and on the control of pain, particularly in the post-operative period. It seems to me irrational, therefore, that people with such a broad all-round basis should spend the vast majority of their time within the confines of the operating theatre. We should now adopt the role of peri-operative physician. One of the constant disagreements between anaesthetists and surgeons is the cancellation of cases booked for surgery because they are not in optimal physiological condition. If the anaesthetist was part of the preoperative assessment and management team, such disagreements should never occur as no patient would be scheduled for surgery until such time as the anaesthetist was satisfied of his physiological status. Because they spend the majority of their time caring for airways, administering intravenous fluids and blood and countering the effects of stress and shock, anaesthetists have a unique role to play in the resuscitation of critically ill patients. Although this role of anaesthesia is expanding it is surely high time that anaesthetists took a high profile position in the resuscitation of patients outside of the operating theatre..... In high care units the use of epidurally administered opiate drugs has revolutionised the management of pain and certain conditions such as multiple fractured ribs, which previously required positive pressure ventilation for their management, are now handled totally satisfactorily by such techniques. Post-operative pain is also well controlled within these high care areas but the patient on the general surgical ward is generally far less well cared for..... Techniques such as patient controlled analgesia (PCA) and, possibly, the development of long acting regional blockade may well provide far better post operative pain relief with earlier

mobilisation of the surgical patient and more rapid discharge from hospital. Surely the time has come for a rethink the way in which anaesthetists occupy their working hours ? The only rational approach is for the anaesthetist to spend a larger proportion of his time on the wards working with patients preoperatively to ensure optimal conditions prior to anaesthesia, and postoperatively to maximise the value of analgesia and proper fluid balance. Naturally this would require considerable increase in anaesthetic staffing and in the present financial climate would seem to be a pipedream. Nevertheless, if we are looking to create a truly complete anaesthetist offering a patient the benefit of all his skills acquired over so many years, then it is essential that anaesthesia should expand its horizons beyond the present confines of the operating theatre and the intensive care unit into the total patient care.”

THE SECOND CHAIR IN ANAESTHESIA

Soon after assuming the position of Head of the Department, Professor James, now settled in new headquarters in the New Groote Schuur Hospital, assessed the logistics of the Department and came to the firm conclusion that, in order to fulfill what was required of the Department, particularly in the field of research, it was vitally important for the creation of a second Chair of Anaesthesia. Motivation to this effect was forwarded to the Dean of the Faculty of Medicine, University of Cape Town, then Professor JP de V van Niekerk, on 22 August 1991.

“Since my appointment to the Chair of Anaesthesia I have constantly motivated for a Second full Professorial post in Anaesthesia and I note that, in your report on the conclusion of my probationary period, you recommend to the University that urgent attention should be given to providing better academic support to the Department of Anaesthesia. Recent developments within the Province have now made this position critical. The Provincial assessment of the Department of Anaesthesia, including both Groote Schuur and the Red Cross Children’s Hospitals, allocated three Chief Specialist posts to this Department. This is clear recognition, by the Province, that the one Professorial Post currently allocated to the Department is grossly inadequate simply from a man management viewpoint. From the available Provincial Funds it was not going to be possible to create the funding to support two further Chief Specialist posts and we, therefore, opted to create only one. I have now been informed that the Province

will, in no way, consider the creation of a Chief Specialist post without the University creating a full Academic Chair for the incumbent of such a post. Clearly this will involve considerable horse-trading with the Province regarding the funding of such a full Chair. This matter is now of considerable urgency and I request, most strongly, that the University view the creation of a Second Chair of Anaesthesia as a matter of urgency.” \

“As far as the academic motivation for this Chair is concerned..... : This Department is the largest, single person Department of Anaesthesia in the country by some considerable distance. Every other department of anaesthesia in the major universities, has at least two professorial posts, with the sole exception of the department at MEDUNSA, which is extremely small. The University of Witwatersrand has three full professorial posts in Anaesthesia. The size of this Department (41 full time specialists/senior specialists and 39 registrars/junior lecturers) represents an administrative load beyond the capability of any one individual to handle satisfactorily. The multiplicity of activities of this Department are such that some sub-division of these tasks is essential if the Department is to fulfill the requirements made of it by the University. In broad terms, the Department should be run on two fronts:

1. There should be an Administrative Head of the Department whose function is the co-ordinating of teaching, the administration of the Department including the appointment of staff, the supervision of trainees and their performance, and the management of the Provincial side of the Department.
2. The second leg of the Department should consist of an Academic Head whose principal responsibility is the management of research within the Department, the supervision of the thesis portion of the MMed degree, the management of the University Anglo American Research Laboratory and the instruction of registrars in research methodology. This portfolio, alone, is probably too large for any one individual but, nevertheless, creation of a Chair to fulfill the second role would be a massive improvement on the present status of the Department of Anaesthesia at the University of Cape Town.

“A constantly mentioned criticism of the Department of Anaesthesia has been that the research output of this Department and the production of MMed degrees has been less than ideal. Although this

situation has recently improved, nevertheless, it will never be possible to achieve the ideal or even an acceptable base, unless further academic support is provided by the University for this Department. It is, therefore, imperative that the University investigate, as a matter of urgency, the creation of a Second Chair of Anaesthesia and that it negotiates with the Province the mechanisms by which such a post is to be funded.”

In a memorandum issued by Ms C Corneilse of the Academic Planning Office, University of Cape Town to Professor James on 29 January 1992, it was stated:

“As you know, the Cape Provincial Administration has authorised the creation of a new Chair in Anaesthesia. The Chair of the Academic Planning Committee, Dr SJ Saunders, has acted on behalf of the Committee and agreed to the establishment of the Chair. Our office has been asked to draft a new advertisement and information sheet.....”

The first advertisement for the second Chair of Anaesthesia appeared in the *South African Medical Journal* on 16 May 1992. This was readvertised in January 1993.

In support of this advertisement, the University of Cape Town issued an Information Sheet for qualifying applicants in February 1992.

“The Department of Anaesthesia

The Department of Anaesthesia is established in the Faculty of Medicine and plays an important role in the education and training of medical doctors, who receive the MBChB degree on successful completion of a six year curriculum, in the postgraduate training of specialist anaesthetists, in clinical work in anaesthetics in the Teaching Hospitals Group, and in research.

In terms of the Joint Agreement between the University of Cape Town and the Cape Provincial Administration which provides for the work of the Faculty of Medicine and the teaching hospitals associated with it, the clinical services are divided for administrative purposes into seven divisions. These are the divisions of Surgery, Medicine, Pathology, Paediatrics, Obstetrics and Gynaecology, Radiation Medicine and the Ancillary Division. The Department of Anaesthesia is located in the Ancillary Division, together with the Departments of Anatomy, Physiology, Medical Biochemistry and Medical Informatics.

All the disciplines requiring anaesthetic service and cooperation function within the teaching hospitals, and anaesthetic staff may be deployed to special interest areas of clinical involvement and development.....

Research and Research Support

The University attaches importance to research and scholarship and tries to provide facilities and financial support for this. All members of the academic staff are expected to undertake research. Individual members of staff work in fields of their own choice and favourable conditions exist for collaborative work within the University. Grants are available from the University Research Committee, the Medical Research Council and other funding agencies.....

Because of the University's commitment to research, members of the academic staff can be awarded generous research leave privileges. This leave usually takes the form of six months leave on full pay after three years, or one year after six years. Travel grants are offered by the University to assist members of staff proceeding overseas on research leave.....The University's Editorial Board provides assistance towards the cost of scholarly publications. Grants are also available to enable staff to present papers at conferences and congresses within and outside Southern Africa."

Service Conditions

"In terms of the Joint Agreement, the University of Cape Town and the Hospital's Department of the Cape Provincial Administration combine to provide medical staffing for the teaching hospitals through a joint medical service under which all medical staff are salaried, either full time or part time. The post under advertisement is full time and is a permanent appointment.....

In general, permanent appointment (tenure) will be granted upon satisfactory completion of a three year probationary period. Staff members and their dependants receive a part remission of tuition fees at the University of Cape Town under certain circumstances. The University and the Cape Provincial Administration reserve the right to appoint a person other than one of the applicants or to make no appointment."

Seven applications were received from candidates locally and other provinces in South Africa. The candidate selected was Professor John Viljoen. The Department has, for many years, been by far the largest single-Chair Anaesthesia Department in the country, and it was with great pleasure that Professor Viljoen was welcomed to the staff in July 1993.

PROFESSOR JOHN FREDERIK VILJOEN

John Viljoen was born in Cape Town on 27 March 1935 where he graduated MBChB (UCT) in 1958, having matriculated at St George's Cathedral Grammar School in 1952. He completed his internship both at Groote Schuur Hospital and Frere Hospital, East London and subsequently took his anaesthesia training in Great Britain at the University of London's Charing Cross Hospital, St Thomas' Hospital and the National Heart Hospital.

John initially became involved in cardiac anaesthesia in 1964 as a resident at London's National Heart Hospital, a facility then involved with groundbreaking work in heart valve replacements. He obtained his FFARCS (Ireland) and FFARCS (England) in 1964.

Professor Viljoen joined the world-renowned Cleveland Clinic Foundation in Ohio in 1966, first as a graduate cardiac anaesthesia fellow and later as a Faculty member. He subsequently established a separate Department of Cardiothoracic Anesthesia, the first of its kind in the world, was Chief of that Department and subsequently Chairman of the Division of Anesthesia. The world's first coronary bypass graft was performed at this institution by Rene Favarolo¹⁶ in October 1967 and Professor Viljoen was the first anaesthesiologist ever to administer anaesthesia for this procedure.^{17, 18}

During his career John made several significant contributions to cardiac anaesthesia. He was the first to show that left ventricular failure could not be accurately detected by measuring central venous pressure. He introduced the method of measuring left atrial pressure¹⁹ by means of inserting a catheter



directly into the left atrium; this was brought out through the skin and connected to a water manometer. The importance of measuring left sided filling pressures is now universally accepted.

He was the first to use the internal jugular route to introduce a pulmonary artery catheter into the heart chambers. The importance of controlled ventilation in the post operative cardiac surgical patient was emphasised in all his early writing. Probably his most significant contribution was the introduction of intravenous nitroglycerin to maintain coronary vasodilatation during and after the procedure.

Professor Viljoen left the Cleveland Clinic in 1976 to assume a professorship at Wadsworth Medical Center, University of California, Los Angeles. He remained there as Vice Chairman of the Department for five years before being offered the Chair in Anesthesiology at the University of Southern California. Another of his interests is pain management and he established pain management programmes at the Cleveland Clinic, Wadsworth Veteran's Administration Medical Center and at the USC University Hospitals. From 1991 he was Chief of Anesthesia USC University Hospital, Los Angeles. During the period 1972 to 1980 he has held offices as President, Association of Cardiac Anesthesiologists (1972); President Cleveland Society of Anesthesiologists (1975-1976) and President Los Angeles Society of Cardiac Anesthesiologists (1976-1980).

John has over 40 peer reviewed publications and numerous book chapters to his credit. He has lectured throughout the world, and established a strong relationship with the Soviet Union, having made several trips to Moscow and Leningrad. He was the honoured guest of the All Soviet Society of Cardiac Surgeons – USSR, a great honour for an anaesthesiologist. The Keynote Address '*The evolution of anaesthetic techniques for coronary artery surgery*' was delivered in Moscow at the Centre for Surgical Sciences on 19th November 1990.

He returned to his Alma Mater in July 1993 and since then has held the Second Chair of Anaesthesia in the Department at Cape Town until his retirement in 2001. Towards the end of his full time career, he took over as Director of the Pain Relief Clinic, after the departure of Dr Barry Bass. He has continued in this position in a part time capacity.

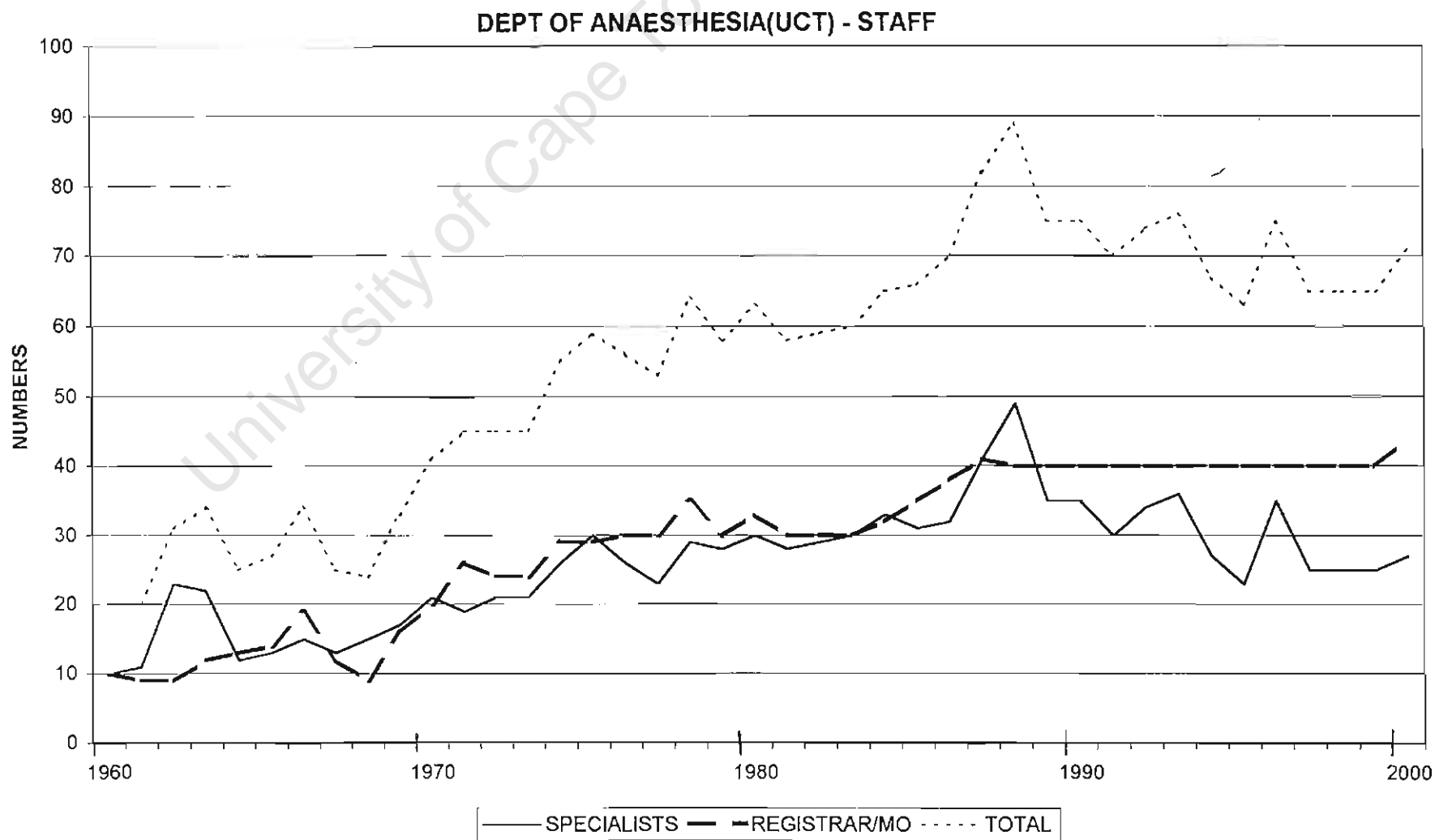
THE STAFF CRISIS IN THE DEPARTMENT

“‘Quick-fix’ solutions are damning medical care – Steady erosion of staff, standards, teaching.”

This was the headline in *Cape Argus Issues*²⁰ in which Professor Solly R Benatar discusses the health crisis. “The rush to achieve much-needed change in the country’s health services has brought with it errors of judgement which have serious implications for the future... Recent trends in macroeconomic policies and national budgeting processes in South Africa have resulted in major reductions in State allocation of funding to the Western Cape Province. There has also been a shift in emphasis away from hospital medicine towards primary and community based health care in response to the apartheid legacy of maldistributed health care services.²¹ The overall reduction in funding²² to the province and the shift in distribution of resources are having radical short term effects on the delivery of health care and will have profound long term implications for medical education and health services.”

This is illustrated by the fact that by March 1998, personnel employed in the health services in the Western Cape will have been reduced to 27 500 from 33 295 in April 1995. The 1998 budget allowed for 21 000 personnel only. “The totally random way in which attrition of staff has been allowed (by way of voluntary severance packages) from some of the most vulnerable areas of health care provision has had an even greater detrimental impact than if carefully planned reductions in person-power had been implemented as a cost-containing measure.”

In these years, the late eighties and early nineties, the reduction in hospital funding resulted in the inability to fill a number of posts. Rather than be faced with erratic post freezing, the Department of Anaesthesia agreed to a reduction in its specialist staff complement by the permanent freezing of a fixed number of posts. In an effort to keep valuable staff within the system, a policy of encouraging unpaid leave was adopted and many junior specialist staff took advantage of this option to gain wider anaesthetic experience overseas. This policy had proved to be of great benefit to the Department with several staff members returning from overseas leave with new ideas and a wider anaesthetic experience. Those that took advantage of this were Peter Gordon, Sylvia Heijke, Paul Hayse-Gregson, Nigel Marot and Bobby Nieuwveld. The majority went to Leicester on what was for a long time, a very successful exchange.



Data from GSH Annual Reports. Due to erratic staff movement & post freezing there may be discrepancies in numbers.

Fig 9

When the Joint Staff Agreement came into being in 1952, the staff complement consisted of 17 members, 12 full time and 5 part time. With the average annual increase of 9.56% in the number of anaesthetics administered from 1950-1955, further posts were made available, some on a temporary basis until the staff complement rose to 11 full time specialists, 6 registrars and 11 part timers in 1960. However, all these posts could not be filled by specialists and so 4 registrars were appointed against these posts. During the next 2 years anaesthetic staff from the other hospitals in the teaching group of the department were 'borrowed' to cope with the workload. In this manner 15 sessions per week were 'borrowed'. By 1963, 25% of senior consultant staff were lured into private practice, the flow at trainee level, however, remained steady. The years 1964 / 1965 were the only ones in a decade when all full time specialist grade posts were full. By 1967 there was a 40% shortage of specialists – this being part of a worldwide shortage of anaesthetists. The problem was to a certain degree, alleviated by new graduates in the Department as well the addition of 1 senior specialist and 1 specialist post in 1968. In the early 70's the drain continued and research in the Department had to be suspended.

The recruitment and employment of foreign medical graduates was valuable from the teaching and international contact aspect, but the relief in the workload they provided was short term. In the latter half of the 70's there was a short supply of trained anaesthetists in the world and the demand for cardio-thoracic anaesthetists was great both in Europe and the USA. A few consultants in the Department left to fill this need. In 1980, the long awaited specialist anaesthetic post specifically for service to the Department of Obstetrics was created. Any further requests for new services from the Department of Anaesthesia could not be acceded to. Surprisingly, in 1982, 2 further posts were allocated to the Department, 1 specialist post for the Princess Alice Hospital and 1 senior specialist post for the Red Cross Children's Hospital.

Unfortunately, the reduction in effective personnel on the ground had significantly increased the strain on the Department, as the workload had been maintained with a 15% reduction in effective staffing. The lack of senior full time experienced consultants in all specialities from 1984 was indicative of the change in medical care in our society : increased privatization and emigration (because of the political climate in the country) were partly responsible. Increased health care costs were a cause for concern not

only in this country but internationally. In 1985 inflation rose to 18.4% and average price increases in consumables in this country were as high as 24%. Mostly, the Department remained fully staffed at the registrar level with a two year waiting list for posts. Further staff posts were allocated in 1986 and the staff complement increased by 2 specialist and 3 registrar posts, totalling 75, with the number of anaesthetics administered to over 50,000. In the next two years 1987/1988, in anticipation of the opening of the New Groote Schuur Hospital, further posts were made available, bringing the total staff number to 89.

But by 1996 because of stringent financial restraints 6 posts were lost, 6 unfilled posts were frozen and 2 were voluntarily given up to avoid erratic cuts, leaving the Department with 35 specialists and 40 registrars and 12 four hourly sessions for part timers. In 1999 a further 10 posts were lost or frozen leaving a staff complement of 25 specialists and 40 registrars/ medical officers.

In a presentation made to Dr Tom Sutcliffe, the regional deputy Director for Health on 5 February 1999 , the Department convincingly demonstrated that the Department of Anaesthesia had been unfairly treated by way of staff cuts – *vis-à-vis* the rest of Groote Schuur Hospital, especially as compared to the Medicine and Surgery departments and *vis-à-vis* Tygerberg Hospital. It was further declared that with the current staff structure of :

Professors	2		
Principal Specialists	3		
Specialists	20		
Registrars	39		
Medical Officers	1		
“Extras”	1	total	66

the Department not only carries the highest workload in the country, but that some of the cases are the most difficult, including complex cardiac, liver and paediatric anaesthesia. Through Departmental conservation , costs have been contained and are amongst the lowest as a result of pioneered low flow anaesthesia ²³ and the highly conservative use of drugs and disposables. The reduced usage of halothane to almost half the total annual consumption as a result of low flow anaesthesia, in the main, is but one example.

DEPARTMENT OF ANAESTHESIA - UCT
ANNUAL NUMBER OF ANAESTHETICS

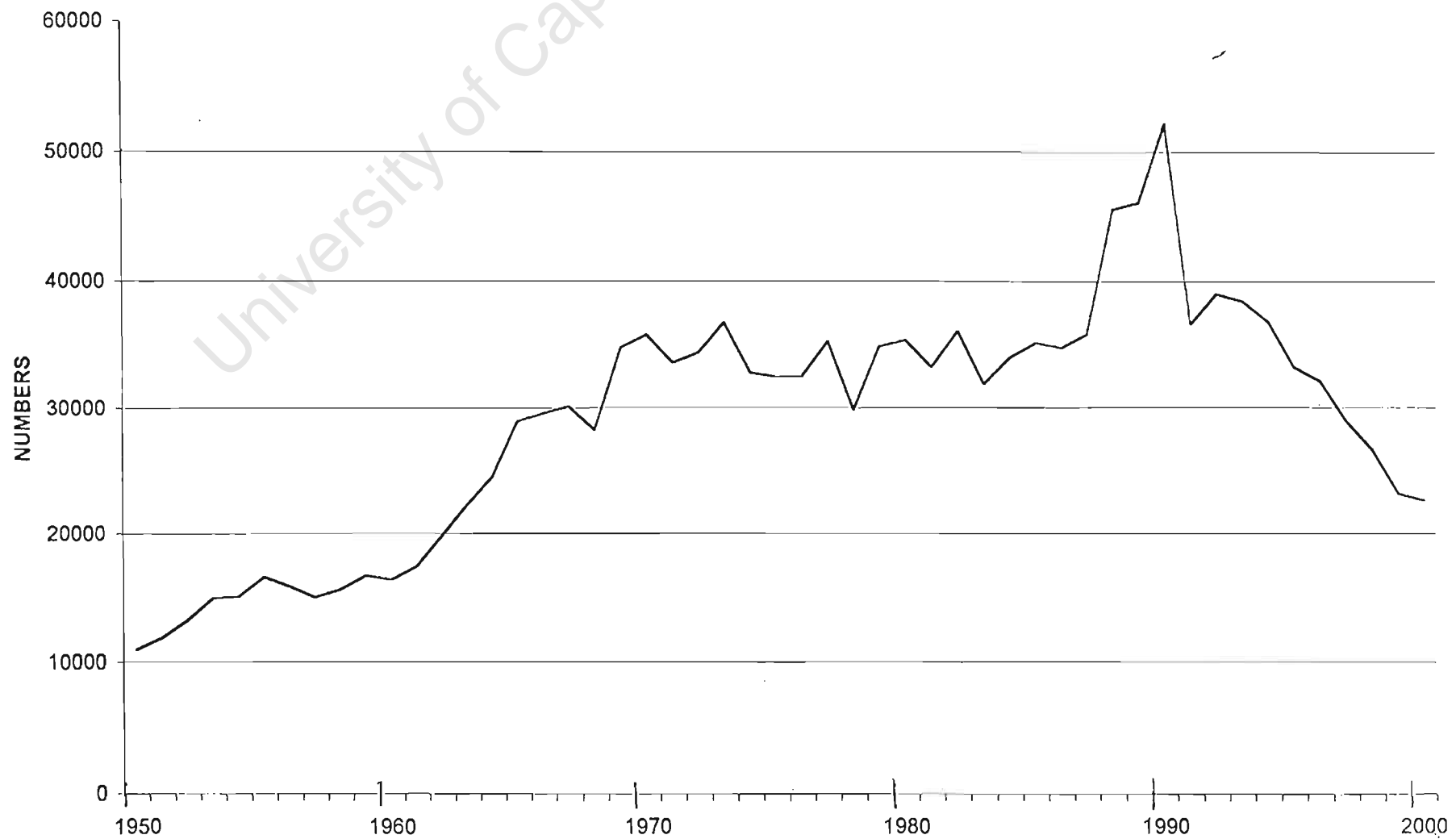


Fig 10

Data from GSH Annual Reports. Does not include private cases.

The Department has consistently produced more publications than any other academic anaesthetic department in the country (fig 7) and the pass rate at the FCA(SA) examination (fig 16) is the highest in the country. In the teaching field, the Department has carried the bulk of the CPD load in the Western Cape.

Along with the above cuts, the lack of provincial secretarial support had continued to place a heavy burden on all the staff, particularly the UCT secretarial staff, and hampered essential services including staff appointments, writing of affidavits and clinical reports, the preparation of letters and compilation of annual reports. Although the staff situation was near critical, the Department continued to be inundated with applications for registrar posts. As a result the appointees are of high calibre and are able to maintain a higher level of service than would otherwise be possible with the dwindling numbers. When Professor Ozinsky retired in 1992, Dr Peter Gordon was appointed head, Clinical Sciences, in the Department of Anaesthesia while being promoted to principal specialist. Dr Tony Butt of the Red Cross Paediatric Anaesthesia service was similarly appointed principal specialist. (Note: Dr Peter Gordon was appointed associate Professor in the Department in October 2001)

CLAUSE 18 VISITORS

Under the terms of the Joint Agreement, provision was made for the appointment of distinguished overseas visitors to two posts in the University of Cape Town and Groote Schuur Hospital for a period, initially of six months. However, this period was far too long for these distinguished guests and the time was reduced to one month. Accommodation was provided in a flat at Medical Residence and the salary paid was that of a senior lecturer providing the candidate stayed for more than three months. For a period of less than this, no accommodation was provided but the University / CPA would pay for an economy class airfare. The first to arrive in the Department under this clause was Dr Gavin Kenny, in 1983.

1983	Dr Gavin NC Kenny	Royal Infirmary, Glasgow
1985	Dr Jordan Katz	San Diego, California
1986	Professor Rob G Merin	University of Texas
1987	Professor Bradley E Smith	Vanderbilt University, Nashville, Tennessee
1993	Dr John Sear	Nuffield Department, Oxford

1994	Dr John Sear	Nuffield Department, Oxford
1996	Professor WJ Russell	Royal Adelaide Hospital, Australia
1999	Professor WJ Russell	Royal Adelaide Hospital, Australia

In 1991 several staff members gained promotion to specialist grade and these were able to replace those who had left. One of them, Dr Berend Mets, left for the USA where he is currently associate Professor of Clinical Anesthesiology and associate Vice Chairman, Resident Education, Department of Anesthesiology, Columbia University, New York. Early in 2000, Berend was elected to the AUA, American Association of University Anesthetists – a prestigious honour indeed. A former member of our Department, Dr Robin Brown who had left in 1986 is currently Clinical Professor of Anesthesiology at the same institution.

An interesting phenomenon was the increasing number of elective students from Finland, Saudi Arabia and Germany who were visiting the Department. It must be borne in mind that since 1988, political stability in South Africa was being achieved. German medical students loved it here, for theirs was a 'hands-on' clinical experience, not easily obtained while being students in their own country. Their introduction to this country and particularly Cape Town was, to a certain extent, because the Chair of Cardiothoracic Surgery was occupied by their countryman, Professor Bruno Reichart from the University of Munich,²⁴ who had succeeded Professor Chris Barnard. But they were not the first, Dr Elke Beyer from Germany had come as a registrar in the Department in 1974.

LIMITED PRIVATE PRACTICE

In December 1991, Limited Private Practice for full time medical practitioners in the Public Service, was approved in principle by the Cabinet. State salaries had not kept up with inflation and it was the government's idea of allowing its staff to make up for the deficit. 'Moonlighting' had by now become quite common and was, in fact, not permitted by their work contracts. A more defined policy was issued by the Department of National Health and Health Services in August 1992. After considerable debate the Faculty of Medicine (UCT) recommended the introduction of group private practice for full time medical

staff. The Department at Groote Schuur Hospital and the one at the University of the Free State were the ones to operate an *internal* LPP as opposed to the rest of the country and the GSH LPP was supposed to be a role model for other centres. All parties were opposed to the introduction of LPP but, in the absence of any other mechanism for improving remuneration, given the State's economic plight, it was reluctantly accepted as an expedient solution. This was a desperate attempt by the State not only to maintain staff morale but also to retain them, while also allowing LPP to generate revenue for the hospital. The pros and cons of LPP were debated at length until the government finally abolished it in 1999 and replaced it with a new system of 'remunerative work outside the public sector' (RWOPS) whereby an employee may be granted permission to do private work outside the normal working hours. In order to minimise conflict within the Department a joint practice was formed and named "Wells, Gordon & Associates". This functioned with a remarkable degree of collegiality, and avoided all the potential conflicts that private practice has brought in numerous other departments.

In this field Professor David Morrell, an ex member of the Department, in his capacity as Chairman of the Fulltime Practice Committee of the South African Medical Association, was a stalwart in trying to improve remuneration packages and bettering the lot for public service doctors. In the year 2000, the Faculty of Medicine, in collaboration with a German consortium, commenced talks and planning for the development of a University Medical Centre in space rented from the Provincial Administration, in the vacant floor of the new Groote Schuur Hospital. The centre was designed to enable full time staff to treat the affluent, the employed and the lesser disadvantaged patients, in plush surroundings, for 'private' remuneration and thereby increase the income to the hospital and departmental coffers.

ORGAN TRANSPLANTATION

LIVER TRANSPLANTATION

In 1968, the Liver Research Group, an interdisciplinary group was formed with the primary objective of establishing a 'liver transplantation in man' programme at the Medical School of the University of Cape Town. It was during this liver research that Harrison's 'hot pig'²⁵ was discovered. The original members of this group concerned with the 'hot pig' discovery were J Terblanche (surgeon), SJ

LIVER TRANSPLANT ANAESTHETICS

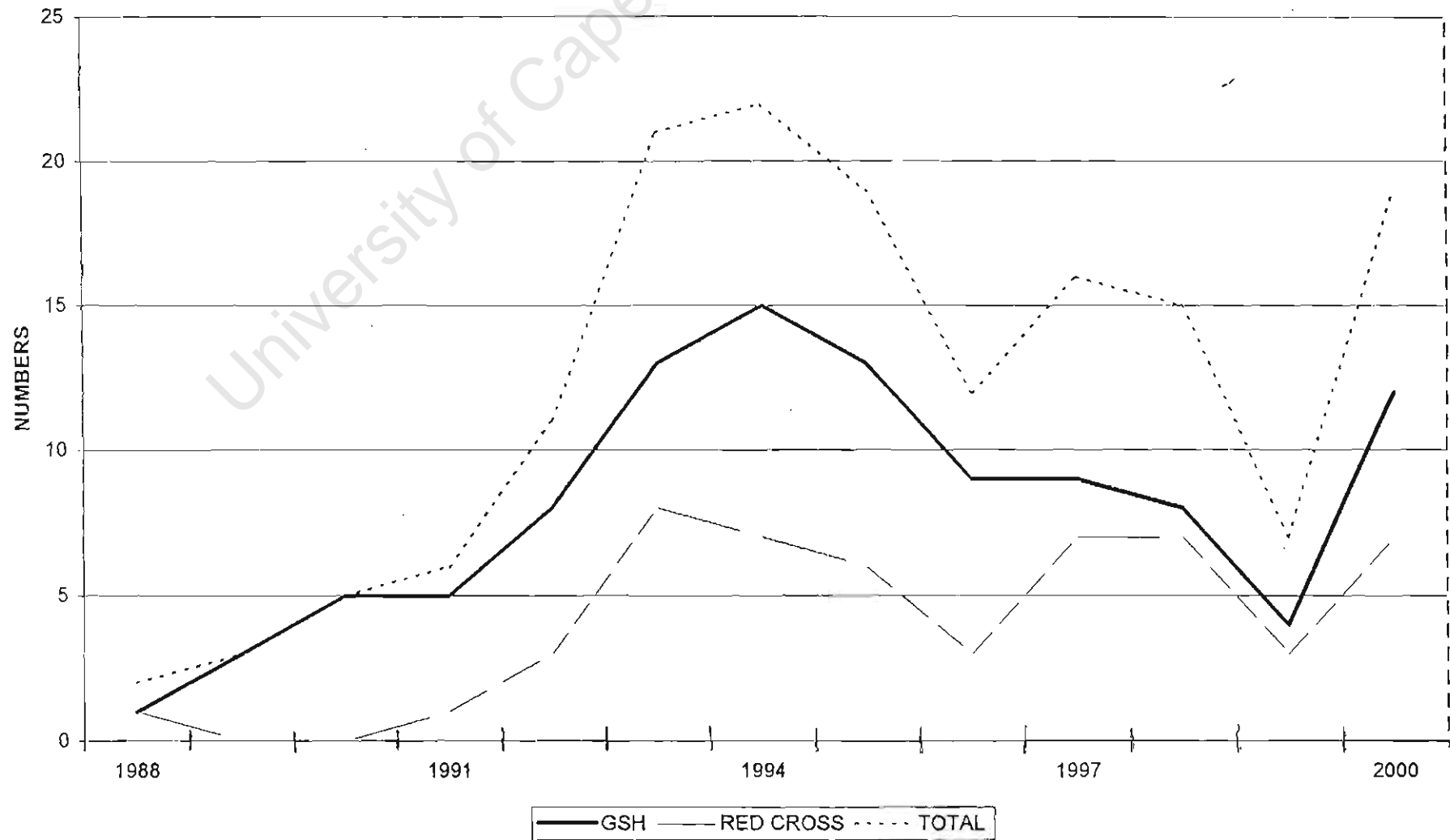


Fig 11

Saunders (physician), JF Biebuyck (anaesthesiology resident), DM Dent (surgical resident), R Hickman (surgical resident), and GG Harrison (anaesthesiologist). Each of these members, in later years, attained professorial appointment.

The reason for selecting the domestic pig instead of the more usual experimental animal, the dog, was that the research group's surgical leader John Terblanche, while working for a period at the Medical School of the University of Bristol (UK), with experimental liver storage and transplantation²⁶, had discovered that the pig did not manifest Hepatic Vein vasoconstriction or 'outflow block' as did the dog. Rejection appeared not to be a problem.

With this background, John Terblanche, initially with Stuart Saunders and subsequently with Ralph Kirsch,²⁷ established the Liver Clinic at Groote Schuur Hospital in about 1970. This clinic is run under the joint aegis of the Departments of Medicine and Surgery and provides a valuable service, both locally and nationally, for patients with complicated liver disease. The clinic was involved in important research and contributed significantly to the understanding and treatment of liver disease. Injection sclerotherapy as the treatment of choice, in the management of acute variceal bleeding from portal hypertension, was established here by John, who by now was building up a formidable and productive Liver Research Unit. Providing anaesthesia for these patients and maintaining the airway, while the rigid oesophagoscope was used to facilitate injection of the oesophageal varices, was an uncomfortable experience.

The objective of the Liver Clinic, with its vast clinical and laboratory background, was to establish a liver transplant programme. The first human liver transplant performed at Groote Schuur Hospital on an adult took place on 23 October 1983. (Note: The first human liver transplant was performed by Tom Starzl in Denver, Colorado, USA in 1963). This was followed by one at the Red Cross Hospital. Despite the initial technical success, both patients died, albeit not immediately. The two transplants are not included in the Liver Transplant Programme statistics which commence in 1988.

Following these initial transplants, it was decided to send surgeons, physicians and anaesthesiologists to established liver transplant units abroad for further experience. In 1987 Drs Tony Butt and Tessa Lopez of the Department's Paediatric Anaesthetic service were sponsored by the Cape Provincial Administration and the local industry to spend three weeks visiting Dr TE Starzl's world renowned liver transplant unit at the Presbyterian University Hospital at Pittsburg, USA. Dr Del Kahn of the Department of Surgery spent two years under the direction of Dr Starzl. The knowledge thus gained on this visit was soon put to good practical use. In 1988 with the current liver transplant programme, the first successful liver transplant was performed on a 48 year old woman with end stage liver disease due to auto immune chronic hepatitis.

At the 10th WFSA Congress at the Hague, the Netherlands in June 1992, Dr Peter Gordon presented a paper titled 'Anaesthesia for Liver Transplantation in Southern Africa' ²⁸ It covered 11 transplants of which one patient died two weeks postoperatively. Ages were between 21 and 56 years.

The mean anaesthetic time was 10.1 hours with 75% of the operations performed at night. Two or three anaesthetists were allocated per case. As has been mentioned before, there was always a chronic shortage of ICU beds as well as donor blood. During the reperfusion phase, a short lived haemodynamic instability was experienced. To overcome this, an inexpensive rapid infusion device was manufactured in the hospital workshops. Veno-venous bypass was used in 9 patients.

Bleeding was very rapid and and between 2 - 63 units of packed cells (mean 19.36); fresh frozen plasma 4 - 22 units (mean 10.6); cryoprecipitate 0 - 80 units (mean 24.5) and platelets 0 - 18 units(mean 8.18) Blood and blood component usage in later years was considerably reduced.

In the period between 1988 and 2000, 105 patients underwent liver transplantation with cumulative graft survival rates at 1 and 5 years of 72% and 61% respectively ^{29, p 485} The Liver Transplant Programme at the Red Cross Hospital, headed by Professors Delwar Kahn and Alistair Millar, was set up in 1989 under Professor Syd Cywes, Head of Paediatric Surgery and the first liver transplant done at the Red Cross Hospital, was in 1991. For the period November 1991- November 2000, 49 children received

liver transplants (3 were retransplanted). Most of these were for biliary atresia^{p 495} Of the 49 recipients, 34 had recovered fully. Statistically about 70% of children who had transplants survived in the long term. Some of the survivors would need a second operation. With a better understanding of the anatomy of the liver, surgical expertise allowed an adult liver to be cut down to size. In 1994, the youngest person in Africa to receive a liver transplant was a mere seven months old. In that year, the youngest baby to receive a transplant was two or three weeks old, the operation being performed in Britain. These operations which lasted up to 11 hours each, were an enormous logistic drain on an already impoverished anaesthetic staff complement.

The number of transplants performed annually peaked at 15 per year in 1994 and thereafter, for a few years, declined. The reasons are multifactoral and include donor organ shortage.

In 1995, at the SASA National Congress held at Pretoria, Dr Peter Gordon was awarded the *Critikon Travelling Scholarship* for his presentation 'Monitoring during Liver Transplantation'. The prize was a fully paid travel to the USA, a two weeks visit to various places of anaesthetic interest in the USA and a daily subsistence allowance for that period.

Professor Deliwar Kahn, who was head of the Transplantation Unit at Groote Schuur Hospital, succeeded Professor John Terblanche, on his retirement, as head of the Department of Surgery and incumbent of the Charles Saint Chair of Surgery of the University of Cape Town in 2001.

CARDIAC TRANSPLANTATION

Clinical cardiac transplantation has been an uninterrupted programme at Groote Schuur Hospital since the first human-to-human heart transplant performed here in December 1967^{p 108} Many transplant units worldwide immediately commenced their own *ad hoc* clinical programmes with unbridled zeal ; 102 heart transplants were done the following year with extremely poor results (47% 30-day hospital mortality, 19% 1-year survival, the tragic record of heart transplants: the year they changed hearts)³⁰ Most units then discontinued their programmes, only four centres, in Stanford, Richmond, Paris and Cape Town,

HEART- HEART LUNG-LUNG TRANSPLANT ANAESTHETICS

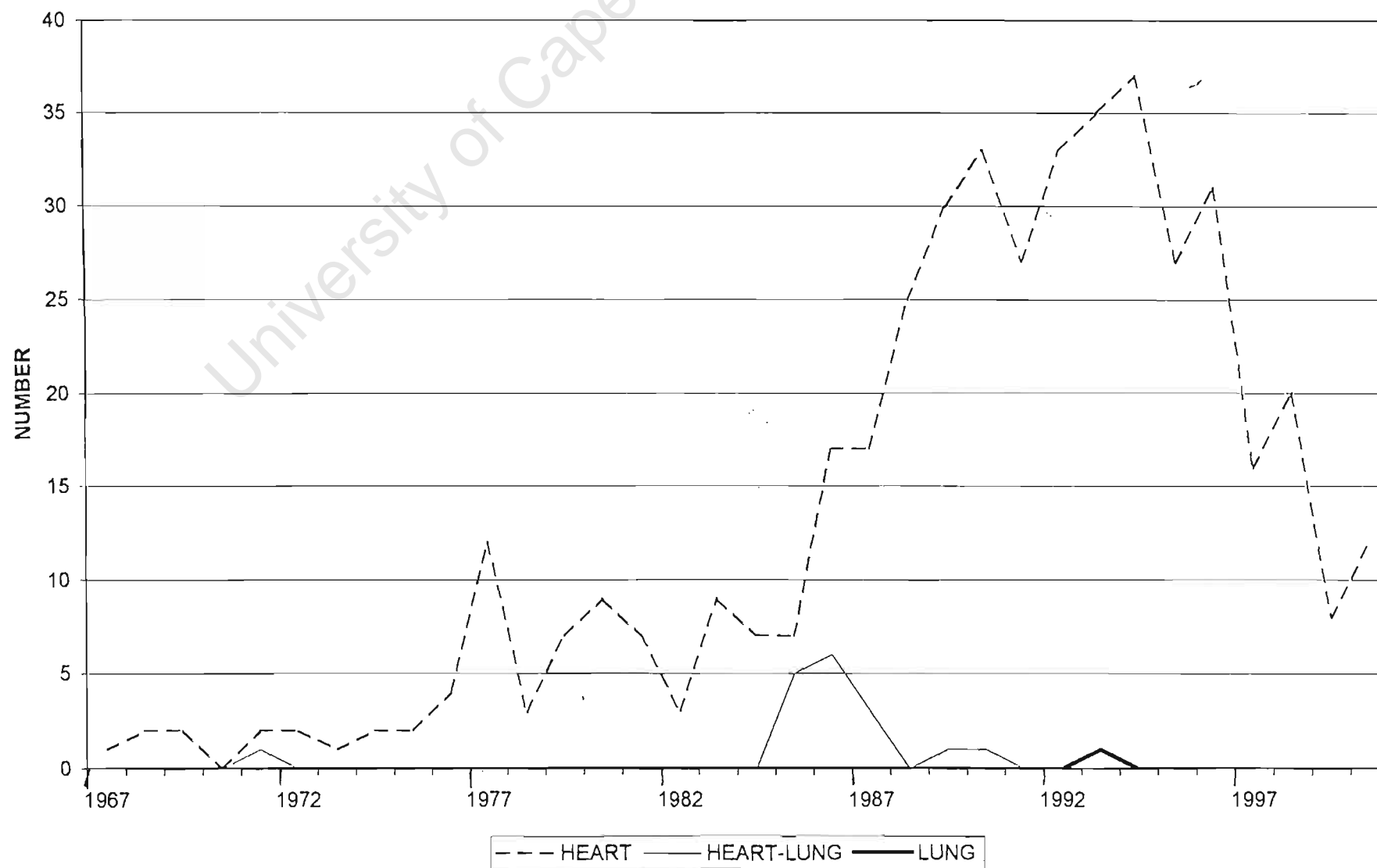


Fig 12

continuing both clinical and research work in heart transplantation and eventually largely overcoming the complexities of immunosuppressive management. Consequently heart transplantation again increased exponentially during the 1980s, and approximately 3000 heart transplants were performed annually worldwide between 1989 and 1994.

“A heart transplant is now a standard, technically simple operation, but the perioperative management remains uniquely complex because of the intense and precise co-ordination required for the logistics of heart procurement, preservation, transportation and surgery, as well as the postoperative management, which frequently requires multi-organ support.”³¹

Until 1994, heart transplants in South Africa were only performed at Groote Schuur Hospital. They are now also being performed at a private institution in Cape Town, the City Park Hospital, recently (November 2000) renamed the Christiaan Barnard Memorial Hospital in his honour, after his recent death. Until 1973 orthotopic cardiac transplantations were performed in the main. Because of certain shortcomings in this method, heterotopic transplantation was devised³² The survival rates at 1, 2 and 5 years increased from 40%, 20% and 20% respectively using orthotopic transplantation to 61%, 50% and 36% respectively using heterotopic transplantation. This technique was used almost exclusively until 1983. Since 1984 orthotopic transplantation has again been undertaken³³

In addition between, 1985 and 1990, 16 heart-lung transplants were performed. In 1993, 1 lung transplant was performed. The total of all cardiac transplants including, lung and heart-lung transplants over the 34 year period from 1967-2000 amounted to 468. In essence, by 1996, the Department had provided anaesthesia for its 400th heart transplant, nearly 30 years after the first. It took 19 years to do the first 100 heart transplants at Groote Schuur Hospital, and thereafter 4 years to do the next 100. 3 years later, another 100 had been done and 2 years 10 months later, the next 100. This was an average of 35 a year.

Dr Ozinsky who administered the anaesthetic for the first heart transplant in 1967 was the consultant in charge of cardiothoracic anaesthesia until Dr Sylvia Heijke was appointed in his place in 1995. She was in 1996, deservedly, appointed principal specialist.

RENAL TRANSPLANTATION

As mentioned in an earlier chapter, the first renal transplant with a cadaver kidney was performed by Professor Christiaan Barnard a few months before the historic heart transplant in 1967. The recipient survived for over twenty years. The Renal Transplant Unit was set up in the 70s under the direction of Dr Jack E Jacobson, assisted by Dr Alan Pontin. They were both involved in the organ harvesting as well as the transplanting. Providing anaesthesia for this type of surgery was fairly routine, barring a few cases which required prolonged postoperative ventilation for 'curarization' following an inadvertent second dose of alcuronium. In 1981 transplantation peaked to 62, including 60 cadaver kidneys and 2 from live related donors. It was also the year of a protocol of deliberate and regular pre-transplant blood transfusions of about 5 units before allografting. In addition central venous lines were established for the treatment. Immunosuppression entered a new era in 1983 when cyclosporin A was introduced, in combination with a low dose steroid regimen, which resulted in a dramatic reduction of postoperative complications. Anti-thymocyte globulin worked well in salvaging grafts not responding to conventional treatment.

In 1989 Dr Del Kahn joined the Unit and this itself underwent a name change to the Organ Transplant Unit to include both liver and renal transplants. The Unit was also transferred to the new hospital, E12, in the same year.

In 1992 Peter Gordon was elected President of the South African Society of Anaesthesiologists for 1992-1993. As 1993 was the Jubilee year for SASA, a National Jubilee Congress was held in Cape Town and organised by Professor James of the Department at UCT. The meeting held at the Arthur's Seat Hotel in Sea Point was the largest yet held by SASA and was highly successful, but unfortunately late registrants had to be turned away because of the inadequate size of the venue. As part of the congress proceedings, Nagin Parbhoo's book "Five Decades – The South African Society of Anaesthetists 1943-1993" was launched at the Rotunda, the Bay Hotel. This book was favourably reviewed in international journals.^{34,35}

RENAL TRANSPLANT ANAESTHETICS

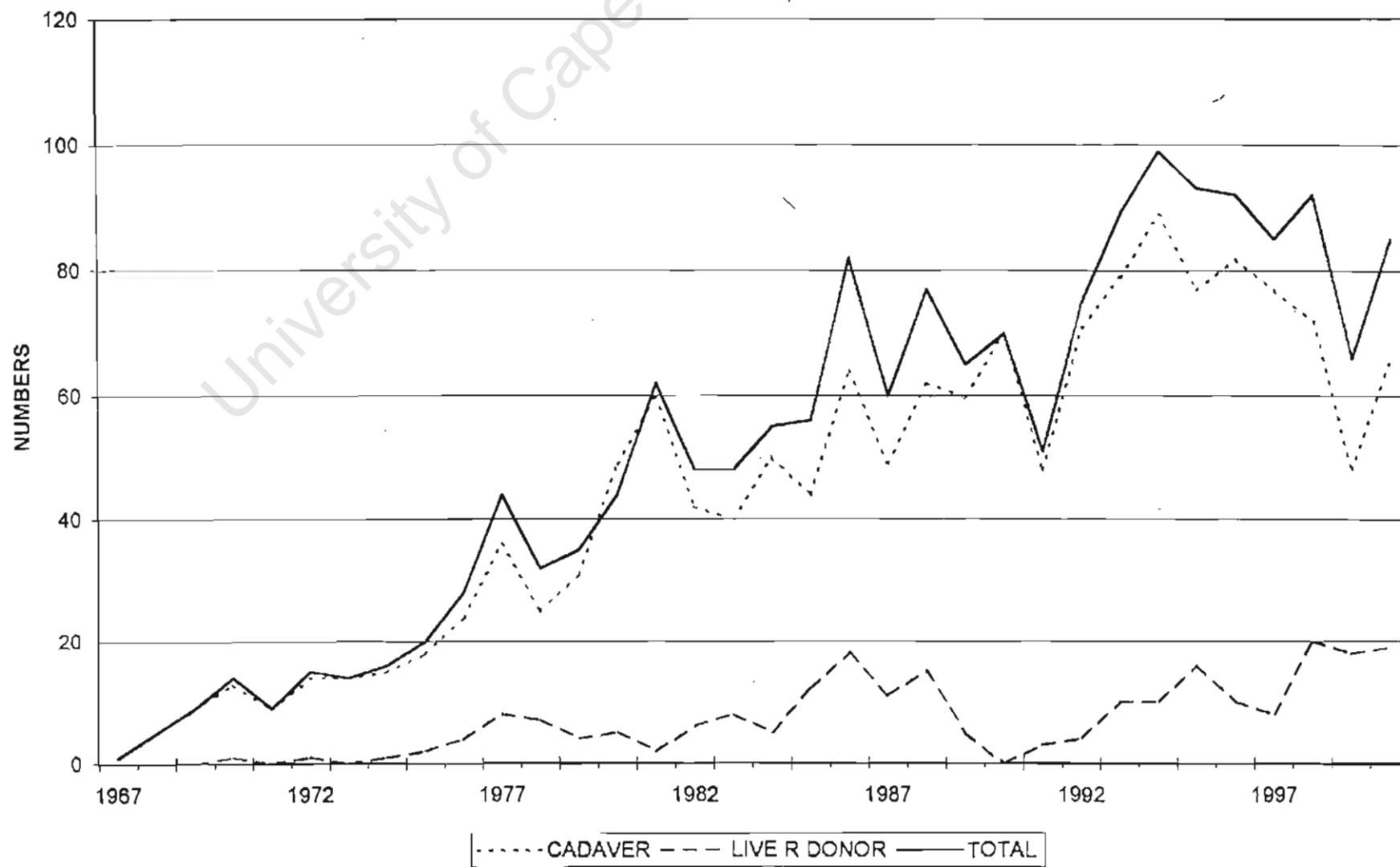


Fig 13

RESEARCH IN THE DEPARTMENT

The fiscal restraints imposed upon the Department have had the greatest impact on the research activities, causing serious erosion. Staff shortages made it virtually impossible to allocate significant allowance of research time to the laboratory. Yet despite this, through the dedication of committed staff, work proceeded in diverse areas of research. Several projects of research were ongoing from earlier years. With the departure of Dave Morrell to take up a professorship at the University of Witwatersrand in 1989, Dr Richard Erskine was appointed to the position as head of the Anglo American Corporation and De Beers Consolidated Mines Anaesthesia Research laboratory. During his tenure in 1990, Dr Piotr Janicki, virtually a post doctoral fellow, and subsequently on an Anglo American grant established by Professor Mike James joined the Department. Dr Janicki a biochemist, who had conducted much research in the Anaesthetic laboratory over the years, was appointed Senior Research Officer when Dr Erskine left. Unfortunately as a result of staff cutbacks and a 10% all round cut ordained by CPA, Piotr lost full time service in the Department in 1991 and was transferred to the Department of Physiology. However, he agreed to continue to train technicians in the Departmental Research laboratory, particularly in the field of catecholamine research. In 1993 Dr Berend Mets was appointed to the research laboratory.

Dr John Sear, Reader in Anaesthesia at the Nuffield Department of Anaesthesia, Oxford University, spent a month in the Department as a Clause 18 visitor and continued some of the work initiated by Dr P Janicki and Professor James on pharmacokinetics

MAGNESIUM

Magnesium is the second most plentiful cation of the intracellular fluids. A white metallic element with an atomic number 12, it is fairly abundant in the body. Perhaps the commonest cause of a deficiency would be iatrogenic, where until the fairly recent past, patients were kept on prolonged intravenous therapy. It is essential for the activity of many enzyme systems and plays an important role with regard to

neurochemical transmission (eg. the binding of messenger RNA to ribosomes is magnesium dependent), and muscular excitability.

Professor James' interest in magnesium started in 1980, while he was head of intensive care at the Harare and Parirenyatwa Hospitals, the initial research being conducted on the use of magnesium sulphate infusions in the management of very severe tetanus³⁶. This was followed by further studies on the use of magnesium sulphate in the anaesthetic management of pheochromocytoma³⁷. 12 other publications followed in quick succession in peer reviewed journals on a wide range of subjects such as magnesium reversal of painful muscle spasm in tetanus, its use in the early management of cardiac ischaemia, the inhibition of catecholamine release associated with tracheal intubation, further work on pheochromocytoma and the management of the hypertensive proteinuric pregnant patient.. A book chapter involved Magnesium and Anaesthesia in 1988. For his thesis on "The role of magnesium sulphate in the control of catecholamine induced cardiovascular disturbances" he was awarded a PhD (Witwatersrand University) in 1990. Further research in this field, conducted at UCT is listed under Departmental chapters and publications in the appendices.

Magnesium has long been used, particularly in the United States, for the management of hypertension and convulsions in pre-eclampsia. However, a brief survey of the literature made it clear that the application of magnesium therapy in this field was almost entirely empirical and that little basic science investigating the effects of magnesium had been performed. In particular, the apparent paradox, that in the laboratory, magnesium could be shown to be a potent vasodilator, yet in pre-eclampsia it had been widely shown to have little effect on the blood pressure, had not been studied. At that time, the management of patients with tetanus was a major intensive care problem, and it seemed that magnesium, through its mild muscle relaxant properties and vasodilator effects might be useful agent in this condition. The first step was to demonstrate the effects of magnesium on haemodynamic function in an intact animal model in which ventilation was supported³⁸. Previous studies in this area were largely confounded by the fact that ventilation had not been supported and the haemodynamic picture was confused by simultaneous ventilatory dysfunction. To resolve this issue, haemodynamic studies were performed in baboons³⁹ and demonstrated quite clearly that, while magnesium was indeed a potent vasodilator and reduced peripheral

vascular resistance, blood pressure was largely unaffected. The explanation lay in the fact that venous return was well maintained, indicating that magnesium was predominantly an arteriolar vasodilator, and that increased cardiac output compensated for the reduction in peripheral resistance.

Early use of magnesium in tetanus suggested that magnesium might be particularly valuable in controlling the autonomic disturbances of this condition, possibly through an anti-adrenergic effect. This possibility was again investigated in baboons where it was shown that magnesium was able to counteract the effects of high dose adrenaline infusions on blood pressure and on cardiac arrhythmias, without impeding the inotropic benefit of the catecholamines³⁹. This raised a number of possibilities, and suggested that magnesium might be an ideal agent to use in the management of patients with phaeochromocytoma. Subsequent investigation confirmed this, and magnesium was shown to be exceptionally useful in the control of haemodynamic disturbances during surgery for the removal of phaeochromocytomas³⁷ and also in the preoperative management of patients with phaeochromocytoma-induced hypertensive crises. Magnesium is now widely accepted as an excellent agent for use in the management of phaeochromocytoma resection^{40, p 339}.

Magnesium was also shown to be particularly beneficial in limiting catecholamine release at the time of endotracheal intubation and studies in pre-eclamptic patients requiring general anaesthesia demonstrated that magnesium was particularly effective in preventing the potentially harmful hyperdynamic response to intubation in these patients^{p 334, p 335}. Magnesium has proven to be useful in controlling intraoperative hypertensive events, including those associated with aortic cross clamping. The ion is a potent diuretic and may offer some renal protection as well. The antiarrhythmic properties of magnesium have been investigated and shown to be useful in a variety of arrhythmias including *torsade de pointes*, and the arrhythmias associated with bupivacaine toxicity^{p 344}. These investigations have led to a repositioning of magnesium away from the field of neurology into the field of haemodynamic control, and magnesium is now best regarded as a shorter acting vasodilator and antiarrhythmic. However, in the brain, magnesium is also an extremely effective NMDA antagonist and this may account for some of its effectiveness in controlling eclamptic convulsions in addition to its beneficial haemodynamic properties.

TRANSOESOPHAGEAL ECHOCARDIOGRAPHY

In 1994, the DC Murray Trust donated an amount of R500,000 to the Departments of Anaesthesia and Cardiothoracic Surgery for the purchase of a Transoesophageal Echocardiograph for use in the Groote Schuur Hospital operating theatres. Dr Sylvia Heijke, head of Cardiothoracic Anaesthesia is involved in research into its application. A technician from Hewlett Packard in Amsterdam held a two day workshop in theatre at GSH demonstrating the use of TEE. A subsequent workshop was held for one day, a year later. Sylvia has collaborated with the cardiac surgeons using TEE to assess mitral valve repairs in patients undergoing coronary artery bypass surgery ^{p 497} and assessing myocardial function. Similarly myocardial function is assessed before and after repair of valves diseased following rheumatic fever. Dr Heijke is also currently building up a database on pathologies of the valves in such patients.

CONTRACT RESEARCH

Over the last 12 years, contract research in the Department has increased considerably in volume. Reduced funding from both Provincial and University sources has meant that academic units have been compelled to seek their own funding for academic activities, and this has inevitably meant increasing reliance on the income derived from industry-sponsored research. The Department has taken part in numerous multi-centre studies in which the initiative has come entirely from the pharmaceutical agencies. The studies have generally provided reasonably good income to the Department, but with limited academic benefit. Studies of this type have been conducted with numerous companies including Glaxo Wellcome, Astra Zeneca and Roche. These studies have included investigations of anti emetic medications, protease inhibitors, potent analgesics, anticoagulants, local anaesthetic agents and sedatives. Recently, the Paediatric Division of the Department of Anaesthesia at the Red Cross Children's Hospital has been particularly successful in attracting industry funding for studies in paediatric patients. More rewarding from an academic viewpoint, have been studies that have been devised by the Department for which we have been able to obtain industry support. A number of these studies have led to the award of MMed (Anaes) degrees to members of the Department (1996,1999). These investigations have included studies into total intravenous anaesthesia, local anaesthetic toxicity, postoperative analgesia (particularly in thoracic surgical patients) ^{p 448, p 458}, various aspects of paediatric anaesthesia and extensive support from Fresenius-Kabi for

a number of studies relating to the problems of coagulation and fluid therapy. The expertise acquired by the Department in the use of thromboelastography has resulted in very generous support from the industry for the thromboelastograph.

THROMBOELASTOGRAPHY

HAEMODILUTION AND HYPERCOAGULATION

Much of the research in this field has been conducted by Professor James and various members of his Department. The serendipitous overhearing of a remark by a speaker at a congress, that the administration of crystalloids led to hypercoaguability, and the fortunate availability of a thromboelastograph in the Department, led to this research and a string of publications from 1995-2000. Work in this field is continuing and Professor James plans to spend part of his sabbatical in 2002, in Middlesex continuing coagulation studies. In 1996 Dr TG Ruttman was awarded an MMed (Anaes) UCT for his dissertation 'Haemodilution and coagulation'.

The ability of blood to clot is largely a function of the balance between procoagulant and anticoagulant factors in the plasma. Consequently, it has been assumed that any form of haemodilution would result in a diminished ability of the blood to clot and, by extension, it was further assumed that the colloid solutions would have a greater effect on coagulation than the crystalloids as they were more effective blood volume expanders. However, a number of researchers over the last 40 years have demonstrated that the apparently counter-intuitive concept that haemodilution may enhance coagulation may, in fact, be true. Studies in the Department ^{p 453 a p 453 b, p 454, p 455, p 457, p 466, p 470, p 479, p 484}, have examined the phenomenon over a number of years, and have shown that all of the crystalloid solutions alter coagulation in a biphasic manner : haemodilution of up to 40% with crystalloid will, surprisingly, enhance coagulation, and a diminution of the rate and force of clot formation can only be seen at dilutions in excess of 60%. This effect has been shown to be independent of the nature of crystalloid used and also to be independent of the temperature or acid-base status of the diluents fluid. It is, however, critically dependent on the calcium concentration, and if the plasma Ca⁺ is reduced below 0.55 mmol/litre coagulation will be impaired.

The colloids have been shown to have a much smaller, but still detectable effect^{p 457, p 470} on enhancing coagulation, but this effect is dependent on the nature of the colloid. The gelatins and the low-to-medium molecular weight starches have little effect, while the large molecular weight starches significantly impaired coagulation at most dilutions. The recent work in the Department has helped to elucidate the mechanism of this paradoxical observation. It has been shown that keeping the concentration of antithrombin III in the plasma constant, despite dilution, partially inhibits the effect of dilution on enhancing coagulation⁴¹. It can be assumed that the overall effect is probably due to an imbalance between the anticoagulant factors, which exist in their functional state in the plasma, and the procoagulant factors which exist as inactive precursors. Haemodilution will directly reduce the concentration of the active anticoagulant factors, but will have little effect on the ability of the plasma to produce active coagulant substances despite the reduced amount of their precursors. Such a mechanism would be beneficial in the wild state, as the principal mechanism for maintaining cardiac output for the *flight or fight* response in the face of blood loss, is internal haemodilution with extracellular fluid. It would obviously have little survival benefit if such a dilution simultaneously impaired the ability of blood to clot. Further studies have demonstrated that, during major vascular surgery, significant increases in coagulation may occur as a result of crystalloid fluid loading and that this may adversely affect the outcome of surgery.

Tocantins in 1951⁴² and Monkhouse in 1959⁴³ reported that moderate haemodilution with crystalloids could induce a hypercoagulable state. This was later borne out by Janvri⁴⁴ in a clinical trial that showed an increased incidence of postoperative deep vein thrombosis related to intraoperative fluid administration. Research in the Department of Anaesthesia at UCT has shown, *in vitro* and *in vivo*, that haemodilution with 0.9% saline and other crystalloid solutions causes enhanced coagulation as measured by the thromboelastograph (TEG®, Manta Medical Systems) and routine coagulation studies^{p 453a, p 453b, p 455p 466, p 470, p 479}. While this has been confirmed by numerous other authors, the mechanism has not been described.

Thromboelastography is a technique first developed by Hartert in 1948⁴⁵. It was re-evaluated in the surgical setting in 1974. Subsequently, it was further developed in various areas. In general, the TEG

measures the coagulation process in whole blood, rather than testing the activity of coagulant factors in anticoagulated plasma, as is commonly done in conventional analysis of coagulation profiles. The findings in these studies can be summarised as follows : (a) 20% haemodilution with saline causes an enhancement of coagulation; (b) the addition of AT III to normal blood has no effect on coagulation; (c) addition of AT III to the diluent to maintain the post-dilutional blood concentrations at pre-dilution levels inhibits the enhancement of coagulation normally produced by dilution.

In the departmental research report for 2000 it is stated: 'Despite a continuing decline in the available staff, and increased pressure of clinical work, the Department has maintained its research output for this year. The gradual growth of a stable senior staffing echelon has contributed to this and the Department is now developing a good cadre of research minded individuals. The Department has been fortunate in being able to attract several reasonably well funded clinical trials, and this should expand our financial base with which to support further research. The studies of haemodilution-associated increases in coagulation continue to play a major part in the research profile of the Department and a collaborative project with University College Hospital, London, in this field has been established, with a fully-funded research fellow, Dr Tony Roche (2000) from UCH spending this year at UCT. The collaboration with Adelaide University, Australia, in particular WJ Russell, has continued successfully and has resulted in two publications ^{p 493, p 494} and two further studies in preparation for publication. The unique clinical material available at the Red Cross Children's Hospital has continued to attract contract clinical research, but has also provided a base for registrar research, and a further MMed thesis is in preparation arising from work conducted in this institution. Studies in thoracic anaesthesia and anaesthesia for phaeochromocytoma are continuing. The research fields are:

- | | |
|-----------|--|
| Dyer RA | total iv anaesthesia; aspects of anaesthesia in patients with severe pre-eclampsia. |
| James MFM | the role of magnesium in the treatment of malignant arrhythmias in association with anaesthesia; control of pulmonary shunting during one-lung anaesthesia, blood transfusion and anaesthesia, haemodilution and coagulation * ; crystalloid v. colloid in trauma resuscitation; efficacy and safety of melagatran H376/95 compared with |

	enoxaparin as prophylaxis against venous thromboembolism; blood coagulation in patients with chronic renal failure, a thromboelastographic study.
Heijke SAM	transoesophageal echocardiography in cardiac anaesthesia.
Reed AR	intravenous regional anaesthesia and the role of morphine; magnesium in the treatment of bupivacaine toxicity * ; the role of magnesium in anaesthesia for patients undergoing cerebral aneurysm surgery.
Ruttmann TG	Interaction of various i.v. solutions and anaesthetic techniques on coagulation; ICU care with Diprivan; the effect of i.v. fluid management with either colloid or a crystalloid on coagulation in patients undergoing peripheral vascular surgery; remifentanyl and midazolam regimen versus a morphine and midazolam regimen in Intensive Care Unit patients.
Viljoen JF	management of pain particularly in post-thoracotomy patients * ; national collaborative study on low flow and closed circuit anaesthesia.
Whitehead P	cardiotoxicity of ropivacaine versus bupivacaine * .
Evans N	studies on the intubating LMA; LMA proseal in isolating respiratory and alimentary tracts; descriptive trial on the new LMA proseal.
Gardner S	rocuronium ^{p 488} for Rapid Sequence Induction (RSI); investigation into the benefits of perioperative skin surface warming in cardiac surgical patients; gender issues in anaesthesia ⁴⁶ .
Van Dyk H	a phase I, single centre, open label study evaluating the pharmacokinetics and pharmacodynamics of dexmedetomidine in paediatric patients.
Roche T	coagulation calcium concentration on citrated whole blood; coagulation effects of <i>in vivo</i> haemodilution with physiologically-based and non physiologically-based starch solutions; coagulation effects of acute normovolaemic haemodilution with hydroxyethyl starches.
Rous SA	the interaction between rocuronium and thiopentone.
Thomas J	epidural infusion of ropivacaine.

- includes original research with the award of MMed (Anaes) UCT degrees.

Having achieved, under the present circumstances, what one would consider nigh impossible – the creation of the Second Chair of Anaesthesia, Professor James continued his campaign to improve the academic status of the Department. His next goal was the creation of a Chair of Paediatric Anaesthesia. In June 1994 he submitted a motivation for such a Chair to a select number of Pharmaceutical firms with a major anaesthetic interest. Letters soliciting support for this venture were also addressed to Professor David Beatty of the Department of Paediatrics & Child Health, the Dean of UCT, Professor Heinz Rode of the Department of Paediatric Surgery and Dr M Hassim.

MOTIVATION FOR A CHAIR OF ANAESTHESIA TO BE ESTABLISHED AT THE RED CROSS WAR MEMORIAL CHILDREN'S HOSPITAL

“The Red Cross War Memorial Children’s Hospital is internationally recognised for its high quality of paediatric healthcare. The Department of Anaesthesia service at the Red Cross Hospital is, at present, run by a dedicated group of anaesthetists who, as a result of the heavy clinical load are not academically active. There is, thus, a critical need for scholarly activity in the field of paediatric anaesthesia. Paediatric Anaesthesia is a sub specialty of the discipline of Anaesthesia and it is not possible for a non-paediatric specialist anaesthetist to provide the kind of leadership and inspiration that is needed. The status of the Red Cross War Memorial Children’s Hospital, (the only specialist Paediatric Hospital in sub Saharan Africa) is such that the Chief of Anaesthesia should be equivalent in rank to those in charge of other departments. Sadly, Paediatric Anaesthesia is the only discipline that does not have professorial level staff. In an exercise conducted by the Commission for Administration several years ago, in which an attempt was made to create an appropriate staffing structure, it was recommended that the Red Cross Hospital should have a Professorial Head. This has never been implemented.

The present government’s emphasis on child health will undoubtedly increase the volume of paediatric surgery. This is likely to result in an increase in the number of relatively minor but important

surgical procedures such as tonsillectomies, myringotomies etc. These patients, are in many instances, anaesthetised by general practitioners with little or no training in paediatric anaesthesia. Consequently children undergoing such surgery are often at risk. Medicolegal experience suggests that there is a disproportionately large number of children suffering from anaesthesia related complications. It is, therefore, a crucial part of the thrust towards improving child health in this country that training in Paediatric Anaesthesia is improved. It would be seen as one of the responsibilities of the Professor of Paediatric Anaesthesia that he should direct an outreach programme with a particular emphasis towards training general practitioners to provide safe anaesthesia for the paediatric patient.

Correspondence continued over the next few years, and although Professor David Beatty supported the motivation, no further progress was made towards this goal.

(Note: Professor James' initial assertion that 'although the Red Cross Hospital Anaesthesia service is staffed by a dedicated team with a heavy workload, they are academically inactive,' is corroborated by a quick examination of the publications that have emanated from anaesthetists at this hospital. In the forty years from 1960-2000 only 25 publications are listed. Of these a mere handful are based on actual research or investigation and fewer still in peer reviewed journals. This is surely a wasted academic opportunity.)

As we are nearing the end of this history, it would be appropriate to record for posterity some of the accolades of members of the Department of Anaesthesia.

THE ARROW AFRICA BEST TEACHER AWARD DEPARTMENT OF ANAESTHESIA UCT

This award was instituted in 1994, both to acknowledge and to encourage excellence in teaching in the Department. It is given to the specialist who, in the opinion of the registrars, has contributed most to the registrars, either in theatre or in the formal teaching environment. The individual is selected by the registrars through a secret ballot. The names are inscribed on a board in the Department.

1994	Jennifer Mary Thomas
1995	Kenneth Francis Wells

1996	Michael Frank M James
1997	Robert Anthony Dyer
1998	Anthony Dan Butt
1999	Robert Wijnand Nieuwveld
2000	Jorge Fonseca Cardoso

THE THEMI AUGOUSTIDES MEMORIAL SHIELD DEPARTMENT OF ANAESTHESIA UCT

This award was presented by the Augoustides Family, in memory of Themí, a former member of the Department who had died tragically in 1976, for the anaesthetic registrar who was judged the best candidate during the cardio-thoracic block. The prize was a year's subscription to the *Journal of Cardiothoracic and Vascular Anaesthesia*.

1994	Bernhard Joachim Riedel
1995	Mark Benjamin Bloch
1996	Andre Grant Phillips
1997	Cornelius van Wyk
1998	Eugene Paul Engela
1999	Steven Alexander Rous
2000	Pieter Roux

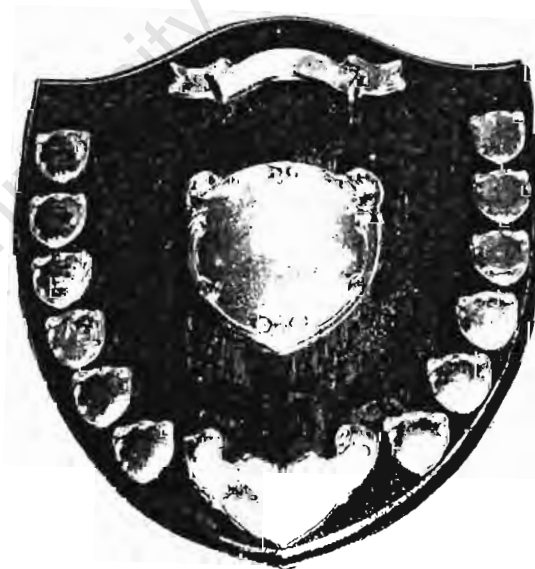
THE 3M SOUTH AFRICA (PTY) LTD RECOGNITION AWARD

This prize of a Littman stethoscope is awarded to the Best Anaesthetic Registrar overall for the year. This requires an excellent pass in the FCA Part II Examination plus an extraordinary contribution to the Department.

1996	MB Bloch
1997	Zane Farina
1998	Andre Grant Phillips



Arrow Africa Best Teacher Award Board



Them Augoustides Memorial Shield

1999	Natalie Hendricks
2000	Hannes Els

THE CRITIKON TRAVEL SCHOLARSHIP

The scholarship is awarded by Johnson & Johnson Medical, in conjunction with LCC of Tampa, Florida in the USA. It was inaugurated in 1985 and sponsored by the Critikon division of Johnson & Johnson. The rules were compiled jointly by Johnson & Johnson and the SA Society of Anaesthesiologists and are included in the bylaws of the society. The presentation must be original and related to patient safety and monitoring. It need not necessarily be based on original research but should contribute to new anaesthesia knowledge. Only those who were members of the Department at any stage are listed.

1988	Dr Rob Macgillivray
1989	Dr David Linton
1990	Dr Berend Mets
1995	Dr Peter Gordon
1996	Dr Donald Miller

THE AFROX GOLD MEDAL

(From 1961-1977) Awarded to the most distinguished candidate in the FFA(SA) / FCA(SA) Part II examination of the Colleges of Medicine of SA.

1965	Dr I Bruk
1971	Dr SR Benatar
1972	Dr WAR Erskine
1976	Dr E Krantz
1977	Dr IWC White

(From 1979-1991) Renamed the **MEDISHIELD MEDAL**

(From 1992) Renamed the **CREST HEALTHCARE TECHNOLOGY MEDAL**

1993 Dr DN O'Regan

THE JACK ABELSOHN MEDAL & BOOK PRIZE

Awarded to the best candidate in the clinical section of the FFA(SA) / FCA(SA) Part II examination of the Colleges of Medicine of SA.

1981	Dr AL Ferreira
1985	Dr SAM Heijke
1985	Dr AR Lichtman
1993	Dr PM van Ammers
1996	Dr MB Bloch

In 1995, Professor James spent a seven month sabbatical at Royal Adelaide Hospital, Australia. During his absence Professor John Viljoen took over as acting Head of the Department and along with Dr Peter Gordon , coped with the unprecedented staff turnover. Professor James was also honoured by the award of the prestigious Burnell-Jose Lectureship in Australia.

COMPUTERIZATION AND INTERNET TECHNOLOGY

While the very first five APPLE computers were purchased for the Department way back in 1982 during Professor Harrison's incumbency (two for the laboratory offices, one for the secretary and two for the Departmental miniscule tape and slide rooms), these had become totally inadequate for modern day usage and needed urgent upgrading. The two computers in the audiovisual unit were financed from a grant of R7500 awarded to Harrison and Morrell from the Jan Pretorius Scientific Research Fund. The move to new Departmental premises provided an ideal opportunity to progress to electronic communication and globalisation.

A common factor which affected all departments was the paucity of funds. The Samuel Michael Geffen Bequest which became operable in 1976 had by 1990 grown to R9200. Unfortunately, because of administrative costs and difficulties in running such small individual accounts, a Departmental decision was taken to utilize this money for much needed computer equipment. This, along with other funds was

used to purchase several computers, faster and with greater capacity, as well as printers, for the larger registrar's room. Each consultant with access to an office was provided with a desktop system. Power Point software was being used extensively for tutorials and lectures.

On 01 February 1997, a Departmental website was launched by the senior consultant Rob Nieuwveld. The website address <http://www.uct.ac.za/depts/anaes/anaesuct.htm> and the homepage was compiled and maintained by him.

DISTINGUISHED TEACHER'S AWARD FOR 1998

Professor Michael James, Head of the Department of Anaesthesia at Groote Schuur Hospital and the University of Cape Town has been honoured by UCT with the DISTINGUISHED TEACHER'S AWARD for 1998.

The Distinguished Teacher Award Selection Committee looks for intellectual vigour and communication skills in the interpretation and presentation of subject matter when presenting the awards. Only four of these awards are made to the entire UCT staff each year.

"In the last decade he has, with boundless enthusiasm, transformed the teaching, training, research and the pursuit of academic excellence within his Department. His background in Zimbabwe has provided him with insight into the needs for practical anaesthetic knowledge among rural practitioners, and this is a point of emphasis in his undergraduate teaching."

"James' outstanding teaching abilities have been acknowledged particularly by his postgraduate students. He is praised for his clarity in teaching, the skilful use of multimedia presentations and his use of anecdote and wit to illustrate and enliven his subject."

"His international reputation in his own area of research combined with his oratorial talent is widely acknowledged. Of his many presentations at international meetings, the majority have been by invitation. Whether he is supervising doctoral or masters candidates, teaching in the operating theatre or

presiding over the weekly academic afternoon, he exhibits an enthusiasm and infectious love of his subject, he stimulates by example and is always available to his students.”⁴⁷

THE FACULTY OF HEALTH SCIENCES

As a result of the severe cuts to the health care budget of the Western Cape region, a Technical Project Team was appointed by the regional government structures in March 1996 to investigate possibilities for reorganisation and rationalisation between relevant disciplines at the Cape Town and Stellenbosch Faculties of Medicine. These efforts proved ineffective, therefore external consultants were appointed. The King's Fund consultants tabled their report early in 1997 and recommended, amongst others, an amalgamation of the regional medical schools. (these were traditionally one English and one Afrikaans). The implementation of this report is still under discussion. (Note: this was regarded by many as a total waste of time, money and energy and came to nothing)

In the process, the UCT Faculty Board of Medicine recommitted itself to the Primary Health Care approach, and continued to introduce this approach into its undergraduate curricula. To reflect this and other changes, the Faculty approved a change of its name to 'Faculty of Health Sciences' in April 1997. Professor Nicky Padayachee, an alumnus of the University, was appointed Dean of the Faculty and took office in January 1998. In 1999 the planned restructuring of the Faculty to improve academic and financial efficiency and promote cross-disciplinary collaboration was commenced. A number of departments were reduced largely through amalgamations, in order to strengthen niche areas, promote academic synergy and build critical mass. Rationalisation of the UCT faculties resulted in the reconfiguration from nine to six and 11 academic departments, reduced from 42.

These are the Departments of Allied Health Sciences, Anaesthesia, Human Biology, Laboratory Medicine, Medicine, Obstetrics and Gynaecology, Paediatrics & Child Health, Psychiatry and Mental Health, Public Health and Primary Health Care, Radiation Medicine and Surgery.

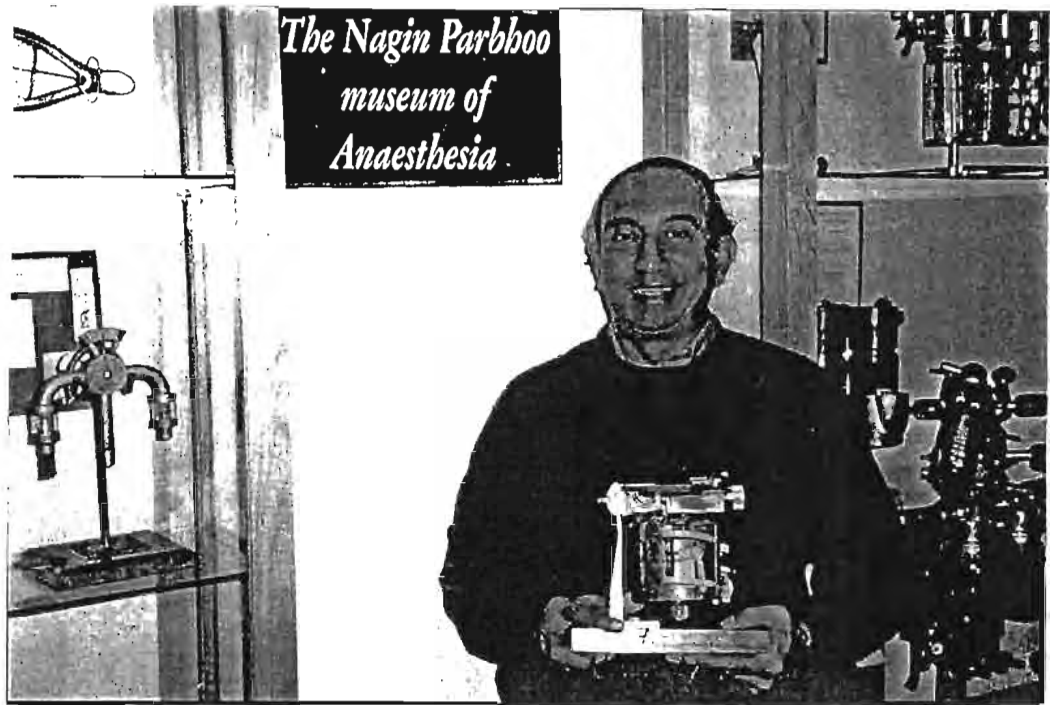
Since 1996, Professor James has been a Member, Faculty of Health Sciences staffing committee, in 1998 a Member, budget committee and in 1999 Portfolio Manager, staffing UCT Health Sciences Faculty. He has been Chairman of the Ancillary Division (now clinical services) since 1989 and from 1990-1995 was the Faculty Representative on the UCT Departmental Grants Committee.

THE NAGIN PARBHOO MUSEUM OF ANAESTHESIA

No reputable Department of Anaesthesia should be without a collection of antiquities revealing our heritage, and the often painful progression of the *art* to the *science* of anaesthesia, over the decades. It is quite ironic that many historical pieces displayed in our Department are in fact, still in daily use in sub-Saharan Africa, in the Pacific islands and in many other developing parts of the world.

On 17 March 2000, at the Presentations Meeting of the Department, Professor Mike James honoured Nagin Parbhoo, an ex senior lecturer of the Department, by naming the collection of historical apparatus displayed there, the '*Nagin Parbhoo Museum of Anaesthesia*'. In accepting this honour, Nagin briefly outlined the background to this collection. He had joined the Department in 1980 and found to his dismay several pieces of anaesthetic apparatus of antiquity strewn about in the Department. Some of these items viz: Clover Apparatus 1877, Hewitt's N₂ O/ O₂ stopcock 1893 and a Hewitt's Wide Bore inhaler 1901 etc. had been mounted by Mr Alan Gregory, Chief CPA Technician in the anaesthetic workshop, for Professor Bull and Dr Hennie du Toit, for the Centenary Exhibition – Anaesthetic display in February 1963⁴⁸

Soon after Professor Harrison had occupied the Chair of Anaesthesia in 1980, he was approached by Nagin re the setting up of an anaesthetic museum. Professor Harrison was pleased with the idea and appointed Nagin Honorary Curator of the museum and also offered space in the HD&OT Building where the Departmental academic office and laboratory were situated. Over the following years, the Curator visited every single hospital and theatre suite in the Cape Peninsula, advertised in the various relevant journals and solicited equipment from them. As a result, the collection gradually grew to what it is today. Many families of recently departed colleagues had also passed on all their equipment to the curator.



Nagin with Fluotec No. 28, the first Halothane vaporiser brought to this country



With the opening of the new Groote Schuur Hospital and the shift of the Department to new premises, the original display housed in book shelves had to be dismantled and transferred. It was at this point that, with the enthusiastic support of Professor James, Nagin approached Crest Healthcare, Roche Pharmaceuticals, Siemans, Boot Pharmaceuticals, Abbott Laboratories and Mr Brian Smith for assistance in this matter. As a result he was able to have manufactured 8 beautiful oak and glass showcases to house the collection. These units were installed on 28 October 1993. Although Nagin had left full time employ at GSH in June 1987, he continued in a part time capacity and during this period personally set out the entire display, updating it on a regular basis. This now forms part of the entire collection, perhaps second only in the southern hemisphere to the Geoffrey Kaye Museum in Melbourne, Australia.

STAFF COMPLEMENT in 2000

With the humble beginnings of a staff complement of 5 at the New Somerset Hospital in 1920, they now reach the number of 71 clinicians in the year 2000, forming a very large Department, stretching over a vast area with its tentacles spread into numerous branches and sub specialties.

PERMANENT AND LONG TERM CONTRACT STAFF

Professors	2	
Associate Professor	1	
Principal Specialists	3	
Senior Specialists/Lecturers	8	
Specialists/Lecturers	13	
Registrars	44	total 71
Administrative & Clerical Staff	2	

Emeritus Professor Harrison and Professor Ozinsky have each been on the staff of the Department for 50 years and are still serving there in the year 2000.

On 11 May 2000 at the admission ceremony, Professor James was once more honoured, in this case by the Senate of the College of Anaesthetists of the Colleges of Medicine of SA (COMSA) with a Fellowship of the College FCA(SA). He was one of the first five Fellows of the College of Anaesthetists to be elected by invitation, (without examination) by the peer review process^{49, 50}.

THE WAY AHEAD

It is an anachronism that having achieved an anaesthetic related mortality as low as it is, and perhaps as low as it would get in the next decade, anaesthesiologists still do not know how anaesthetic agents act on the brain. The safety of anaesthesia achieved in this Department and other academic centres in the rest of the world does not relate to anaesthesia in the rest of the African continent and developing nations in the rest of the world. In North and Central Africa, ether is still the mainstay, oxygen is provided by oxygen concentrators and the classic EMO with bellows, housed in the Departmental museum is still in daily use. A query about the use of spinal anaesthesia in the north was answered thus “Yes, we do use spinals – if and when a spinal needle can be found.”

This safety that we speak of has only been realised because of due diligence and a mind boggling array of sophisticated monitoring devices, which measure most parameters, many in real time. The enhanced knowledge and training of anaesthesiologists in physiology and homeostatic mechanisms has made it possible to make most patients ‘fit for anaesthesia’ and this includes the dying or ‘brain dead’ for harvesting of their organs. When presented with critically ill patients, the term ‘fit for anaesthesia’ becomes debatable as most trained anaesthetists should be able to choose an anaesthetic technique which suits that particular patient and not *vice versa*.

Socio-economic circumstances have changed the ground rules for surgery and surgical morbidity. Global dominating factors such as a deteriorating economy, penury and inanition, alcohol and drug addiction, disease, violent crime and warfare with an array and arsenal of firepower and unsophisticated knives and not least of all, terrorism, have all caused an enormous strain and drain on anaesthetic staff, resources and critical care. Trauma, certainly in this country, has demanded priority and elective surgery has been pushed aside. No government, no matter how advanced and how affluent, is able to sustain such a

drain on its healthcare budget. It is therefore ironic and aggrievous that anaesthesiologists who are highly skilled, will be unable to practice their profession to the extent that they are trained for.

Advances in the last two decades has enabled the pharmaceutical industry to present to anaesthesiologists analgesic drugs of great potency and volatile agents of such low solubility and great expense, with marginal additional benefits. The *art* of anaesthesia has changed to the *science* of anaesthesia, and pulse oximetry, since the last decade and a half, has made anaesthesia so apparently simple, that some anaesthesiologists no longer maintain physical contact with their charge and are but self confident in watching monitors only. The tragedy or the mother of all nightmares is the patient who lies there, totally paralysed, analgised and wide awake, particularly with low concentrations of volatile agents or the selectatec pointing the other way. This condition is often euphemistically called awareness '*under anaesthesia*'. These potent new analgesic drugs are so efficient that they are able to suppress any *fight or flight* cardiovascular response and thus the monitors merrily tick on at a rate of about 65 BPM / minute, giving no indication of any misadventure. Only about 25% of patients suffering awareness in the ASA Closed Claims Project demonstrated cardiovascular changes.

But help is at hand. The last decade has shown a rapid increase in brain monitoring equipment on offer by manufacturers. Apart from the older EEG, totally unsuitable in a theatre environment, evoked potentials, bi-spectral analysis, near infra red spectroscopy and Doppler blood velocity monitoring has been made available. For use in intensive care situations, subjective techniques to quantify sedation, anxiety and agitation requires the patient to move and co-operate. In the anaesthetised state where therapeutic neuromuscular blockade has been used, evoked responses, the BIS analysis and heart rate variability has been used. Of these, the BIS has been studied the most. Until recently, there was no monitor available that was reliable in letting us know at any given moment in time if the patient had been rendered in an anaesthetic state where memory and recall were prevented. The BIS monitor is a processed EEG with advanced algorithms that report a number from 0 – 100. 100 represents an awake state and 0 complete EEG inactivity. The monitoring electrodes are simple and quick to apply. This monitor will, undoubtedly, be

standard issue on all anaesthetic machines in the future. The range of payment for claims for awareness have been between \$1000 and \$ 1,700,000 in the USA.⁵¹

Other concepts are related to slowing or quieting CNS activity without the use of pharmacologic compounds. It is possible to use electrical currents for the precise purpose of producing anaesthesia. Acupuncture and methods to produce analgesia via transcutaneous electrical stimulation are already in place and are effective in some patients. The realisation that drug and neurotransmitter action at receptor sites can be electrically provoked, raises the possibility of producing drug action on the CNS without need for the drug. All that is left is to identify the precise or best energy source and focus it on that part of the brain (put simply) to prevent nerve conduction. What is not known is the range of fields that produce reversible neurological effects.

Amongst other areas of research are studies of the biology and neuropsychology of consciousness. Powerful research tools such as Positive Emission Tomography (PET) and functional Magnetic Resonance Imaging (MRI) are likely to reveal major mechanisms of consciousness. PET will be used to study various stimuli, with and without low doses of anaesthetic drugs, for a greater understanding of how general anaesthetics work.

It is now accepted policy that adequate peri and postoperative pain care enhances the postoperative recovery and well being of the patient. Major advances in the understanding of the physiology and pharmacology of pain are continually being made. Pharmacological studies are also relevant in identifying the many neurotransmitters and neuromodulators that are involved in pain processes in the dorsal horn itself. Were the Hindu and Chinese ancients aware of this while aligning the chakras?

These are just a few examples of what lies ahead for anaesthesia. However, all of this comes at great cost and Healthcare managers are tallying the dollars and pounds. The cost of anaesthetic drugs *per se* is relatively minimal and although anaesthetic and monitoring equipment is very expensive, these costs can be drastically reduced by leasing all this equipment. In order to further reduce costs, an anaesthetic technique that is rapidly gaining favour and momentum, particularly in the United States of America, is

regional plexus blockade with the insertion of an indwelling catheter for the continuous infusion of long acting local anaesthetic agents. This technique is done without general anaesthesia and with the total exclusion of narcotic agents, thereby allowing surgery to be performed in Day Care Centres with early discharge of the patient.

The most expensive item is the anaesthesiologist. However, this, as part of the .Health Budget, is but relative in terms of the total national budget. It is at this point that we must refocus our attention to the Joint Agreement formulated in 1951. Drastic fiscal cuts by way of major staff reduction has virtually wiped out the inherent capacity of the Department to conduct any research, it has stifled the Departmental capacity to teach – thereby reducing the output of trained anaesthetists sorely needed for Africa and most of all, it has severely curtailed the rendering of service to, particularly, the disadvantaged community that Groote Schuur Hospital serves.

As part of the research aspect of the Joint Agreement, the University of Cape Town must bear some of the burden for such research funding. The eighty year history of the Department of Anaesthesia shows very little evidence of such responsibility. It is hoped that, while the University's funding difficulties are appreciated, this shortcoming will be corrected and prioritised in the near future. It is vitally important that this Department's international repute of excellence in all aspects, be not only maintained, but that it be enhanced.

Notes and references:

- 1 On 29 March 1889 the foundation stone of the Johannesburg Hospital on the hill, was laid. This was opened on 5 November 1890. The hospital itself was to replace the temporary hospital, a tin shack, opened by Landdrost Captain von Brandis on 1 August 1888. Mother St. Adele and the Sisters of the Holy Family served this and the new hospital for about 28 years, laying the foundation for an internationally famous nursing school. Further extensions were made in 1904, when it had about 376 beds, making it the largest hospital in Southern Africa. In 1913 when additional hospitals were being opened as branches, this hospital was referred to as the Johannesburg General Hospital. With the opening of the new Johannesburg Hospital, it underwent a name change to the Hillbrow Hospital, after the suburb in which it was situated.
- 2 Originally Matabeleland, it was opened to white settlers and named Rhodesia after Cecil John Rhodes of the British South Africa Company. The BSAC was founded by Rhodes in 1889 and granted a Royal Charter, giving it rights to govern, administer, mine and make treaties north of the Limpopo.
- 3 Harare, renamed after independence and the foundation of Zimbabwe in 1982. The city was founded in 1890 as Fort Salisbury, later to be known as Salisbury.
- 4 St. Monica's was shut down in the late nineties as part of rationalisation and the patients were transferred to the Mowbray Maternity Home.
- 5 The Princess Alice Home was opened in February 1933 by Princess Alice, Countess of Athlone, as a recovery unit for children suffering from complaints involving disease or injury of bones. In 1950 it was converted to a fully-fledged orthopaedic hospital, situated in Main Road, Retreat. The hospital, had for years, provided an enriching experience in orthopaedic anaesthesia. The late Dr Elizabeth Senior, Dr Franca Falanga and others had served here in a senior anaesthetic consultant status for many years. As part of the trimming and rationalisation process, the entire hospital was relocated to D Floor in the new GSH in August 1998 and the buildings were used to house the DP Marais TB Hospital, originally in Westlake.
- 6 The date 16 October 1846 is accepted as the date of the beginning of anaesthesia, as it was Dr William TG Morton who was the first to *publicly demonstrate and convince* the audience of the success of anaesthesia. Others had used anaesthetic agents before but they, either did not publish their work or did not share their experience with others.
- 7 James Young Simpson (1811-1870). Professor of Midwifery at Edinburgh, substituted chloroform for ether in November 1847. He had established a precedent in Scotland for routinely administering ether by the simplest means of applying and reapplying a cloth soaked in ether to cause unconsciousness and muscular relaxation. When he switched to chloroform, this was poured freely upon a folded handkerchief or pad of material which was then held over the patients face.
- 8 John Snow (1813-1858) was born in York, England. After Morton, he was the first whole time anaesthetist and in 1847 wrote a book, *On the inhalation of Ether in Surgical Operations*. He was anaesthetist at St George's Hospital and also worked with Robert Liston at University College Hospital. In 1853 Snow originated the method of 'chloroform *à la reine*', when he acted as anaesthetist at the birth of Queen Victoria's eighth child, Prince Leopold, and in 1857, at the birth of Princess Beatrice.
- 9 Joseph T Clover (1825-1882). Clover was born in Aylesham, Norfolk, England and after the death of John Snow, became the leading scientific, anaesthetic investigator and practical anaesthetist in Britain. He worked at the University College and Westminster Hospitals. In 1862 he invented a chloroform inhaler which enabled percentage mixtures of chloroform and air to be accurately measured and administered. It took the form of a large bag, slung over his shoulders, and it contained 4½ % chloroform vapour in air.
- 10 Hannah Greener was a healthy girl of fifteen who was to have a toenail avulsed. The corresponding nail on the other foot had been removed successfully under ether anaesthesia three months before. She was the first chloroform fatality, on 28 January 1848, this occurring near Newcastle. This first fatal case served to exemplify not only the peculiar dangers of chloroform anaesthesia, which so mystified the earlier anaesthetists, and those that came later, but it also demonstrated many of the pitfalls, which, through bitter experience, they eventually learned to avoid.

- 11 Pethidine Hydrochloride (Demerol, Meperidine) was first synthesised in 1939 by Schaumann and Eisleb at the Hoechst Farbwerke in Germany. It was first used as premedication by Schlungbaum in 1939 and by Rovenstine and Batterman in 1943. The newer analgesic fentanyl is related to pethidine, but is much more potent.
- 12 Trichlorethylene was first described in 1864 by E Fischer, when it was used as an industrial fat solvent and in the dry-cleaning trade. Its general anaesthetic effects were described in 1911. It is decomposed by sunlight as well as soda-lime with the formation of toxic products such as dichloracetylene. It must therefore not be used in closed circuits. The Trilene used in anaesthesia was coloured blue with waxoline blue for identification purposes. The advantages were that it had good analgesic properties, was non-flammable, relatively lacking irritation of the upper respiratory tract and did not depress respiration.
- 13 Waterton, C. Wanderings in South America. Everyman's Library. ed Ernest Rhys No 772. 1925: 61-62.
- 14 Griffith HR, Johnson GE. The Use of Curare in General Anaesthesia. *Anesthesiology* 1942; 3: 418-420.
- 15 James MFM. 1990 PhD (Wits) "The role of magnesium sulphate in the control of catecholamine induced cardiovascular disturbance".
- 16 Dubb A. Death of Rene Favarolo (1923-2000) : Pioneer of Coronary Artery Bypass Surgery. *Adler Museum Bulletin* 2001; 27 (2 & 3): 20-21
- 17 Viljoen JF. Anesthesia for Internal Mammary Artery Implant Surgery. *Anesthesiology* 1968; 23(4): 515-520.
- 18 Viljoen JF, Gindi MY. Anesthesia for Coronary Artery Surgery. *Surgical Clinics of North America* 1971; October: 1081-1093
- 19 Viljoen JF. The value and limitations of central venous pressure measurements in acute myocardial decompensation. *Proceedings of the Third European Congress of Anaesthesiology* 1970; September.
- 20 *Cape Argus*. Cape Argus Issues November 18, 1997.
- 21 There were 14 Ministries of Health, covering all the provinces and the numerous 'bantustan' pseudo 'independent' states.
- 22 The budget allocated in 1998 / 99 was R540 million but the total expenses amounted R551 million. *Groote Schuur Hospital Annual Report* 1998 / 99.
- 23 The use of low-flow and closed-circuit anaesthesia has several advantages, among them being increased humidification and decreased heat loss, reduced pollution in the environment with halogenated gases and most important of all, in today's economic climate, reduced costs. Low-flow techniques are becoming more easily applied with the increased availability of sophisticated anaesthetic delivery apparatus as well as agent specific monitors which can analyse the gases breathed by patients. It is advised that these agent monitors should be used for low-flow techniques particularly with the agent halothane. Agents with low solubility such as desflurane and sevoflurane allow a more rapid change in delivered concentration, particularly after the initial period of wash-in, which may be 10 minutes or less. End tidal gas monitors are slowly becoming the norm in modern anaesthesia. It has not been widely employed for paediatric anaesthesia because of the potential for leak due to the cuffless endotracheal tube.
- 24 With the retirement of Professor Barnard in December 1983, the University honoured him by the creation of the Chris Barnard Chair of Cardiothoracic Surgery. The first incumbent, appointed in 1984, was Professor Bruno Reichart from the University of Munich, Germany. With his arrival, the scope of cardiac surgery was widened. Coronary artery surgery became routine, the use of the internal mammary artery was reintroduced, there were very few contra-indications for valvular surgery, a place was found for the repair of acute dissecting aortic aneurysms and aortic arches were replaced by applying deep hypothermia and cardiac arrest. Heart-lung transplantation was re-introduced, the first being performed by Barnard in 1971. Professor Reichart resigned the chair and head of department in 1989 to take up a position in Munich. He was succeeded by Professor John Odell.
- 25 pl 19, p 137
- 26 Dent DM. Professor J Terblanche. Editorial *South African Journal of Surgery* 2000; 38(4): 79
- 27 Professor Ralph E Kirsch graduated MB ChB (UCT) in 1964, MD (UCT) in 1968 and FCP(SA) in 1970. As associate professor, he was appointed Head of firm F1/F11 (successor to Professor

- Eales who had retired) from January 1981. He was appointed to the second Chair of Medicine in 1983 and in 1984 was elected to the Fellowship of the University of Cape Town. Ralph has had a life-long interest in liver disease.
- 28 Gordon PC, James MFM, Robson SC, Michell WL, Kahn D. Abstracts 10th WFSA Congress , The Hague 12-19 June 1992. Abs. No 261
 - 29 Kahn D, Spearman CW, Millar AJW. History of Liver Transplantation at the University of Cape Town and Groote Schuur Hospital. *South African Medical Journal* 2000; **38**(4): 88-90.
 - 30 Thompson T. The tragic record of heart transplants, the year they changed hearts. *Life Magazine* 1971; 17 September: 56-70.
 - 31 Van Oppel UO, Brink JG, de V van Niekerk JP. Issues in Medicine – Heart Transplants – Historical perspective and the need for a national policy. *South African Medical Journal* 1994; **84**(9): 594-596.
 - 32 Hassoulas J, Barnard CN. Heterotopic Cardiac Transplantation – a 7 year experience at Groote Schuur Hospital, Cape Town. *South African Medical Journal* 1984; **65**: 675-682.
 - 33 Reichart BA et al. Heart Transplants at Groote Schuur Hospital, Cape Town. Twenty year's experience. *South African Medical Journal* 1987; **72**: 737-739
 - 34 Glauber DT. Book review Five Decades. *Anesthesia & Analgesia* 1994; **78**: 615
 - 35 McLellan I. Book review Five Decades. *Anaesthesia* 1994; **49**: 272
 - 36 James MFM, Manson EDM. The use of magnesium sulphate infusions in the management of very severe tetanus. *Intensive Care Medicine* 1985; **11**: 5-12
 - 37 James MFM. The use of magnesium sulphate in the anaesthetic management of phaeochromocytoma. *Anesthesiology* 1985; **62**: 188-189.
 - 38 James MFM, Cork RC, Dennett JE. The effect of magnesium sulphate on the cardiovascular system of the baboon. *Magnesium* 1987; **6**: 314-324.
 - 39 James MFM, Cork RC, Harlen GM, White JF. Interactions of adrenaline and magnesium on the cardiovascular system of the baboon. *Magnesium* 1988; **7**: 37-43.
 - 40 James MFM, Huddle KRL, Owen AD, van der Veen BW. The use of magnesium sulphate in the anaesthetic management of phaeochromocytoma in pregnancy. *Canadian Journal of Anaesthesia* 1988; **35**: 178-182.
 - James MFM. The role of magnesium sulphate in the anaesthetic management of phaeochromocytoma – a report of 17 anaesthetics. *British Journal of Anaesthesia* 1989; **61**: 616-623.
 - 41 Ruttman TG, James MFM, Lombard EH. Haemodilution-Induced Enhancement of Coagulation is Attenuated *in vitro* by Restoring Antithrombin III to Pre-Dilution Concentrations. *Anaesthesia and Intensive Care* 2001; **29**: 489-493.
 - 42 Tocantins LM, Carroll RT, Holburn RH. The clot accelerating effect of dilution on blood and plasma. Relation to the mechanisms of coagulation of normal and haemophilic blood. *Blood* 1951; **6**: 720-739.
 - 43 Monkhouse FC. Relationship between antithrombin and thrombin levels in plasma and serum. *American Journal of Physiology* 1959; **197**: 984-988.
 - 44 Janvrin SB, Davies G, Greenhalgh RM. Postoperative deep vein thrombosis caused by intravenous fluids during surgery. *British Journal of Surgery* 1980; **67**: 690-693.
 - 45 Hartert H. Blutgerinnungsstudien mit der Thromboelastographie, einem neuen Untersuchungsverfahren. *Klinisches Wochenschriften* 1948; **16**: 257.
 - 46 Grants from the Jan Pretorius Research Fund were awarded to the following members of the Department :
October 1982. Professor GG Harrison & Dr D Morrell. R7500 for existing and future research, as well as the purchase of computer equipment.
May 1984. Dr D Linton. R2500 for proposed research on Myasthenia Gravis.
January 1989. Professor PD Potgieter for the conduct of a clinical trial by his registrar Dr John Turner on "Patient recollection following intensive care". R1000
September 1989. Professor PD Potgieter. R1000 towards an ICU project to cover part of the cost of a sister's salary, photocopying and computer costs.
May 1993. Dr D Linton. R8000 for a project on "Adaptive lung ventilation". R3500 towards a technicians salary and the balance for a 486 IBM-compatible computer.

September 1997. Dr PC Gordon. R10,000 for a project entitled "The contribution of the College of Medicine of South Africa Diploma in Anaesthesia to anaesthetic practice in South Africa".

May 1999. Dr SV Gardner. R5380 for a country-wide postal survey to assess whether gender impacts on a career in medicine and more specifically in anaesthesia.

Dr NP Parbhoo. R5400 for research into the 80 years official history "The Department of Anaesthesia UCT- 1920-2000. A History."

47 *UCT Monday Paper* 1998; 23 November 17(36): 2-3.

48 The New Somerset Hospital was opened in 1862.

49 *Transactions – Journal of the Colleges of Medicine of South Africa*. 2000; 44(1): 24.

50 *Transactions – Journal of the Colleges of Medicine of South Africa*. 2000; 44(2): 10.

51 Caplan RA. The ASA Closed Claims Project : Lessons Learnt. American Society of Anesthesiologists *Annual Refresher Course Lectures*. 1998; October 17-21: 221 pages 1-7.

University of Cape Town

APPENDICES :

POST GRADUATE QUALIFICATIONS OF MEMBERS OF THE DEPARTMENT

1935	Dr Gerald Hochschild (First South African to obtain the DA)	DA RCP (Lond) RCS (Eng)
1936	Dr Jack Smith	DA RCP (Lond) RCS (Eng)
1938	Dr Jacob N Abelsohn Dr Harry Berelowitz	DA RCP (Lond) RCS (Eng) DA RCP (Lond) RCS (Eng)
1940	Dr John U Human	DA RCP (Lond) RCS (Eng)
1946	Dr Edgar B Hacking	DA RCP (Lond) RCS (Eng)
1948	Dr Samuel Citron	DA RCP (Lond) RCS (Eng)
1950	Dr Cecil S Jones	MS(Minn.USA) DA (ABA)
1951	Dr Peter S Jenkin	DA RCP (Lond) RCS (Eng)
1952	Dr Arthur B Bull	DA RCPS (Ire)
1953	Dr Peter S Jenkin	FFA RCS (Eng)
1953	Dr Jacob Levin	DA RCPS (Ire)
1954	Dr Jacob Levin Dr Bruno Blankenberg	DA RCP (Lond) RCS (Eng) DA RCP (Lond) RCS (Eng) DA RCPS (Ire)
April 1954	Dr Jacob N Abelsohn	FFA RCS (Eng)
1954	Dr Abram H Cohen	DA RCPS (Ire) DA RCP (Lond) RCS (Eng)
1954	Dr Gaisford G Harrison	DA RCP (Lond), RCS (Eng)
1954	Dr Edgar B Hacking	FFA RCS (Eng)
1955	Dr Joseph Ozinsky	DA RCP (Lond) RCS (Eng) DA RCPS (Ire)
1955	Dr Derek M Jowell Dr Norman Smiedt	DA RCP (Lond) RCS (Eng) DA RCP (Lond) RCS (Eng)
1955	Dr Matthys H Heyns Dr Nathaniel James Miklem Dr Sarel Francois Knipe	DA RCP (Lond) RCS (Eng) DA RCP (Lond) RCS (Eng) DA RCPS (Ire)
1955	Dr Cecil Moss	DA RCPS (Ire)
1955	Dr Gaisford G Harrison	FFARCS (Eng)
1955	Dr Basil Solomon	DA RCP (Lond) RCS (Eng)

ANNUAL QUALIFICATIONS IN THE DEPT
DA, MMED, FFA/FCA

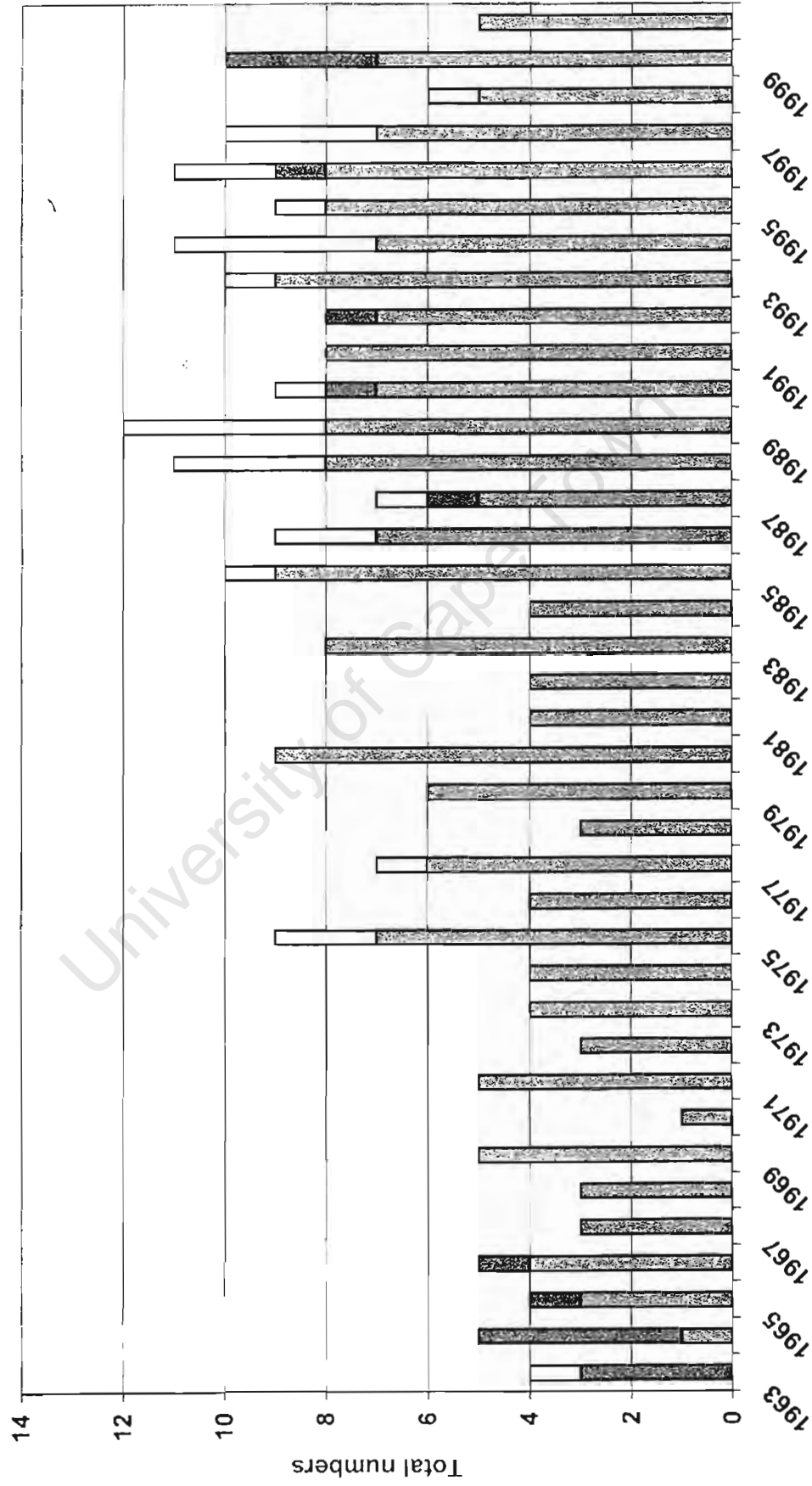


Fig 14

MMED(ANAES) UCT

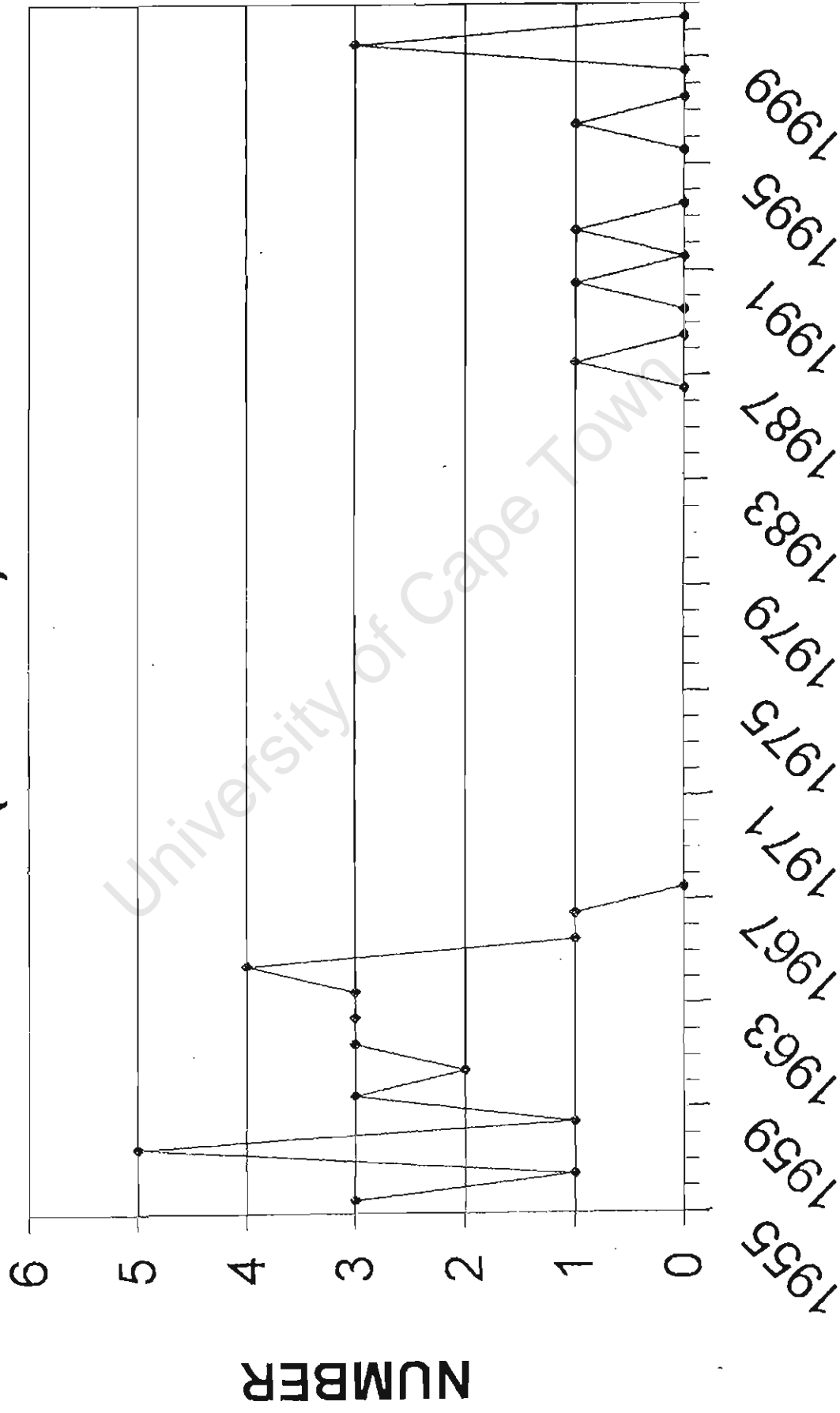


Fig 1:

FFA / FCA QUALIFICATIONS (UCT DEPARTMENT)

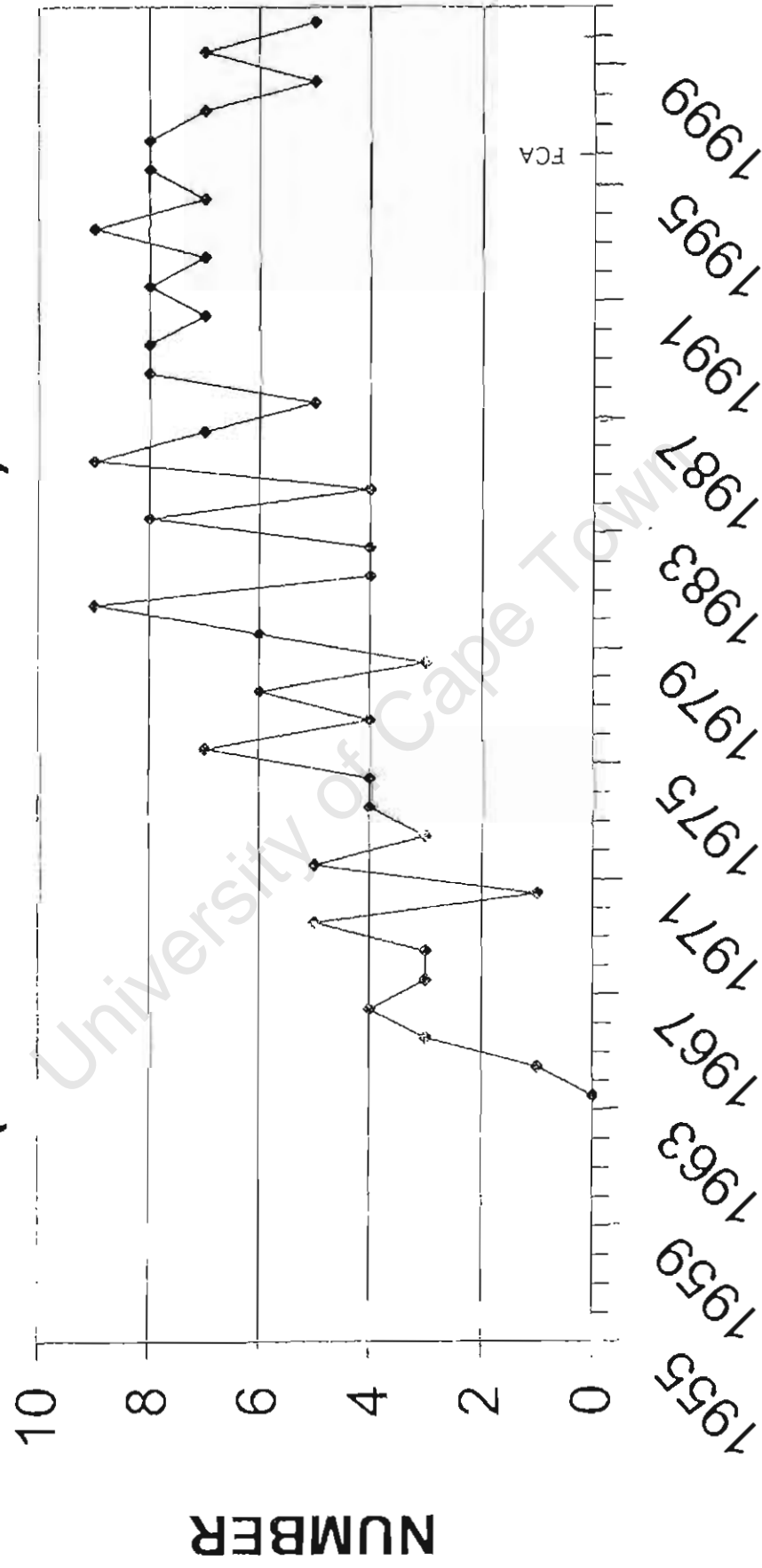


Fig 16

Dec	1955	Dr Leah Atkins Dr Peter HB Maytom Dr Leslie S Meyerowitz		MMed (Anaes)
	1956	Dr Derek M Jowell		FFARCS (Eng)
	1956	Dr Jacob Levin		FFARCS (Eng)
	1956	Dr Cecil Moss		DA RCP (Lond) RCS (Eng)
	1956	Dr Norman W Schmaman		MMed (Anaes)
	1957	Dr Cecil Moss		FFARCS (Eng)
June	1957	Dr Hans J Schmidt Dr James C Woeke		MMed (Anaes)
Dec	1957	Dr Cor GG du Plessis Dr Mathias Friedland Dr Jan A Pretorius		
June	1958	Dr Leonard R Bingham		
	1958	Dr Arthur B Bull		FFARCS (Eng)
	1958	Dr Basil Solomon		FFARCS (Eng)
Nov	1959	Dr Petro H Malherbe Dr Peter J Horrigan Dr Gideon J Rossouw		MMed (Anaes)
	1960	Prof Arthur BBull Dr Cecil Moss Dr Joseph Ozinsky	Foundation Foundation Foundation	FFA RCPS (Ire) FFA RCPS (Ire) FFA RCPS (Ire)
Nov	1960	Dr Hendrik J du Toit Dr Seymour Hoffman		MMed (Anaes)
	1960	Dr Willem vd M Lambrechts		DA RCP (Lond) RCS (Eng)
June	1961	Dr Anthony MC Whitaker		MMed (Anaes)
Nov	1961	Dr Pieter A Vis Dr Willem vd M Lambrechts		
June	1962	Dr Michael J Rorke Dr Cedric J Dekenah		
Nov	1962	Dr Theunis M Botha Dr Norman Smiedt		FFA RCS(Eng)
June	1963	Dr James A Collie		MMed (Anaes)
Nov	1963	Dr Jeanne ME du Plessis Dr Austin GCB Anderson		
June	1964	Dr Christiaan L Wicht		MMed (Anaes)
Sept	1964	Dr John D Coxon		FFA (SA)
Nov	1964	Dr Hendrik JT Morkel Dr Ray P Smithson DR Arthur L Burman		MMed (Anaes)
April	1965	Dr Austin GCB Anderson		FFA (SA)

		Dr Issy Bruk	FFA (SA)
		Dr Alfred J Liebenberg	FFA (SA)
June	1965	Dr Frantisek Fiser	MMed (Anaes)
June	1966	Dr Maria E Massing	MMed (Anaes)
April	1966	Dr John A Cowlin	FFA (SA)
		Dr Michael EO Howell	FFA (SA)
		Dr Ian JS Wright	FFA (SA)
Sept	1966	Dr Guy A Currie	FFA (SA)
	1966	Dr Gaisford G Harrison	MD (UCT)
April	1967	Dr Alex T Augoustides	FFA (SA)
		Dr John L Couper	FFA (SA)
Sept	1967	Dr Zellick Misnurer	FFA (SA)
April	1968	Dr Christopher J Hundleby	FFA (SA)
Sept	1968	Dr Billy Goldblatt	FFA (SA)
		Dr Philip L Zaacks	FFA (SA)
		Dr Joseph Rubin	FFA RCS (Eng)
May	1969	Dr Kenneth W Bretherton	FFA (SA)
		Dr Julien F Biebuyck	FFA (SA)
		Dr Michael FA Mann	FFA (SA)
		Dr Jack E Danchin	FFA (SA)
			FFA RCS (Eng)
Sept	1969	Dr John C Weinberg	FFA (SA)
Dec	1969	Dr Ian A Sloan	MD (UCT)
May	1970	Dr David A Walker	FFA (SA)
Sept	1970	-----	
April	1971	Dr Solly R Benatar	FFA (SA)
		Dr Robert Jedeiken	FFA (SA)
		Dr Ivan J Nurick	FFA (SA)
Sept	1971	Dr Peter J Levin	FFA (SA)
		Dr Stuart A Linde	FFA (SA)
	1971	Dr Julien F Biebuyck	D Phil (Oxford)
April	1972	Dr William Alfred Erskine	FFA (SA)
Sept	1972	Dr Geoffrey C Bax	FFA (SA)
		Dr Peter D Potgieter	FFA (SA)
April	1973	Dr Ronald M Blair	FFA (SA)
		Dr Elaine V Clarke	FFA (SA)
		Dr Bryan L Williams	FFA (SA)
		Dr Abdullah Ismail	FFA (SA)
Sept	1973	Dr Michael L Grant	FFA (SA)
		Dr Elizabeth M Senior	FFA (SA)
		Dr Hendrik M Coetzer	FFA (SA)
		Dr Jonathan S Smith	FFA (SA).
	1974	Dr Thomas J Voss	FFA RCS (Eng)

April	1974	Dr Cornelius J Cronje Dr Simon JH Frank Dr Stephan E Rebstein Dr Eric Bean	FFA RCS (Eng) FFA (SA) FFA (SA) FFA (SA)
Sept	1974	Dr Anthony D Butt	FFA (SA)
COMSA DA started 1974		Nil	
April	1975	Dr Richard D Barnes	DA (SA)
		Dr Robert I Peters	DA (SA)
April	1975	Dr Michael A Flynn	FFA (SA)
		Dr Barth T Fontein	FFA (SA)
		Dr Robert Jordaan	FFA (SA)
		Dr Richard D Cooke	FFA (SA)
Sept	1975	Dr Richard L Kohn	FFA (SA)
		Dr Anthony P Bull	FFA (SA)
		Dr Martin B Kass	FFA (SA)
April	1976	Dr Dr Gil Faclier	FFA (SA)
		Dr Rodger E Thornington	FFA (SA)
Sept	1976	Dr Rodney N Enraght-Mooney	FFA (SA)
		Dr Evan M Krantz	FFA (SA)
April	1977	Dr Eric S Solomon	FFA (SA)
		Dr David J Comyn	FFA (SA)
		Dr William A Chappell	FFA (SA)
Sept	1977	Dr William L Michell	DA (SA)
		Dr John Hawkswell-Curtis	FFA (SA)
		Dr David F Morrell	FFA (SA)
		Dr Ian W White	FFA (SA)
	1977	Ms Jean Marsh	PhD (UCT)
	1977	Prof Arthur B Bull	FFARACS (Hon)
April	1978	Dr Gerald E C Gane	FFA (SA)
		Dr Gordon A Irving	FFA (SA)
		Dr Bruce Sapsford	DA (SA)
Oct	1978	Dr Donal F McIntyre	FFA (SA)
		Dr Johanna I Combrink	FFA (SA)
		Dr Alexander L Swanepoel	FFA (SA)
April	1979	Dr Gerard F Browne	FFA (SA)
		Dr Anthony R Brown	FFA (SA)
		Dr Selwyn S Ger	FFA (SA)
Sept	1979	Dr Peter C Uys	FFA (SA)
		Dr Alastair G Macdonald	FFA (SA)
		Dr William L Michell	FFA (SA)
	1979	Ms Anka Mans	PhD (UCT)
April	1980	Dr Graham Archer	FFA (SA)
		Dr Lindley R Horak	FFA (SA)
Sept	1980	Dr Willem P Blom	FFA (SA)
		Dr David Chapman	FFA (SA)
		Dr Mike de Haan	FFA (SA)

		Dr Allison Dick	FFA (SA)
		Dr David Linton	FFA (SA)
		Dr RG MacGillivray	FFA (SA)
		Dr James C Miller	FFA (SA)
	1980	Ms Veronica Manca	PhD (UCT)
		Dr Andre deV Louw	FFA RCS (Eng)
April	1981	Dr Jerome R Elk	FFA (SA)
		Dr William D Bonner	FFA (SA)
		Dr Peter R Siebert	FFA (SA)
Sept	1981	Dr Bruce D Sapsford	FFA (SA)
		Dr Errol I Elk	FFA (SA)
		Dr Sheila L Etoe	FFA (SA)
		Dr Anton L Ferreira	FFA (SA)
April	1982	Dr Edward M Blaine	FFA (SA)
		Dr Peter C Gordon	FFA (SA)
		Dr Donald W Paterson	FFA (SA)
Sept	1982	Dr Jane E Hughes	FFA (SA)
April	1983	Dr Gordon S Lennox	FFA (SA)
		Dr Stanley Davis	FFA (SA)
		Dr Lionel R Smith	FFA (SA)
		Dr Ian G Wright	FFA (SA)
Sept	1983	Dr Ian W Crooke	FFA (SA)
		Dr Nagin P Parbhoo	FFA (SA)
		Dr Bruce Cloete	FFA (SA)
		Dr Philip DS Heyns	FFA (SA)
	1983	Ms Melanie Ziman	PhD (UCT)
March	1984	Dr Dennis de Villiers	FFA (SA)
		Dr Donald M Miller	FFA (SA)
Sept	1984	Dr Nola Ann van Heerden	FFA (SA)
		Dr Julian D Pamm	FFA (SA)
March	1985	Dr Jean CH Elferink	FFA (SA)
		Dr Sylvia AM Heijke	FFA (SA)
		Dr Clive J Nussbaum	FFA (SA)
Sept	1985	Dr Alan M Howell	FFA (SA)
		Dr Patricia A Kendall	FFA (SA)
		Dr Anthony R Lichtman	FFA (SA)
		Dr Alit L Marais	FFA (SA)
		Dr Allen JR Stidworthy	FFA (SA)
		Dr Tom G Watson	FFA (SA)
March	1986	Dr Hyde W Garrett	DA (SA)
		Dr Gerald AC Gane	FFA (SA)
		Dr Leopold H Mantel	FFA (SA)
		Dr Paul B Hayse-Gregson	FFA (SA)
Sept	1986	Dr Robert A Dyer	FFA (SA)
		Dr Franca M Falanga	FFA (SA)
		Dr Charles R Lund	FFA (SA)
		Dr Milton Raff	FFA (SA)

		Dr Ian T Cripwell	DA (SA)
		Dr Susan C Dowdle	DA (SA)
March	1987	Dr Ashley C Davidson	FFA (SA)
		Dr Robert W Nieuwveld	FFA (SA)
Sept	1987	Dr Clive J Nussbaum	MMed (Anaes)
		Dr Berend Mets	FFA (SA)
		Dr Bruce S Robinson	FFA (SA)
		Dr Jennifer M Thomas	FFA (SA)
		Dr Alan C Berkman	DA (SA)
		Dr Berend Mets	FFARCS(Eng)
March	1988	Dr Robert A Drummond	FFA (SA)
		Dr Julian C Fuller	FFA (SA)
		Dr Louis I Gottschalk	FFA (SA)
		Dr Jonathan L Liesching	FFA (SA)
		Dr Michael CC Makein	FFA (SA)
		Dr David A Nisbet	DA (SA)
Sept	1988	Dr Ian B Findlay	FFA (SA)
		Dr Nigel R Marot	FFA (SA)
		Dr Keith D Stevens	FFA (SA)
		Dr Harald KS Steinhaus	DA (SA)
		Dr John P van Dongen	DA (SA)
March	1989	Dr Christopher P Elsworth	FFA (SA)
		Dr Robin J Grant	FFA (SA)
		Dr Michael H Le Grange	FFA (SA)
		Dr Richard D Jones	DA (SA)
		Dr Gabriel GF Stoltz	DA (SA)
		Dr Helen H Zambellis	DA (SA)
Sept	1989	Dr Martin J Brossy	FFA (SA)
		Dr Donovan D de Villiers	FFA (SA)
		Dr Sibylle A Eickhoff	FFA (SA)
		Dr Johannes M van der Merwe	FFA (SA)
		Dr Michael J Whitehead	FFA (SA)
		Dr Barry D Kussman	DA (SA)
March	1990	Dr Kevin D Camden-Smith	FFA (SA)
		Dr Ian T Cripwell	FFA (SA)
		Dr Richard L Llewellyn	FFA (SA)
Sept	1990	Dr John V Gasson	FFA (SA)
		Dr Kenneth L Keet	FFA (SA)
		Dr Wendy MacLeod	FFA (SA)
		Dr Mervyn H Woolf	FFA (SA)
		Dr Paul N Whitehead	DA (SA)

	1990	Dr Gordon A Irving Dr David M Linton Prof Michael FM James	MMed (Anaes) MPhil (Crit care) PhD (Wits)
	1990	Mr A Thumser	PhD (UCT)
	1990	Prof GG Harrison	Hon FFARACS
March	1991	Dr John A Barwise Dr Judith A Brewer Dr David M Espen Dr Colin P McClarty	FFA (SA) FFA (SA) FFA (SA) FFA (SA)
Sept	1991	Dr Willem A Burger Dr Douglas A Holden Dr Lynne D Keeton Dr Douglas R McKendrick	FFA (SA) FFA (SA) FFA (SA) FFA (SA)
March	1992	Dr David C Abramson Dr Andrew P Harington Dr Mark A Josephson Dr Helen H Zambellis	FFA (SA) FFA (SA) FFA (SA) FFA (SA)
Sept	1992	Dr Barry D Kussmann Dr Evan G Pivalizza Dr Édward V Dichmont	FFA (SA) FFA (SA) FFA (SA)
	1992	Dr Berend Mets	PhD (UCT)
	1992	Dr Robin L Rund	MMed (Anaes)
	1992	Prof Gaisford G Harrison	FANZCA (Hon) (new title for the FFA RACS)
March	1993	Dr David G Armstrong Dr Gary I Goldmann Dr Desmond N O'Regan Dr Deborah C Segal Dr David H Wium	FFA (SA) FFA (SA) FFA (SA) FFA (SA) FFA (SA).
		Dr PC Polderman	DA (SA)
Sept	1993	Dr Patrick P Musto Dr David A Posel Dr Dennis M Turner Dr Pieter M van Ammers	FFA (SA) FFA (SA) FFA (SA) FFA (SA)
		Prof Gaisford G Harrison	Awarded DSc (Med) (UCT)
March	1994	Dr Brian M Gardner Dr Marco S Wischnewski	DA (SA) DA (SA)
Sept	1994	Dr Troy S Browne Dr Luc JRM Evenepoel	FFA (SA) FFA (SA)

		Dr Margaret C French	FFA (SA)
		Dr Susan V Gardner	FFA (SA)
		Dr Richard D Jones	FFA (SA)
		Dr Thomas G Ruttman	FFA (SA)
		Dr Andre J van Druten	FFA (SA)
		Dr Ann Mare Brogden	DA (SA)
		Dr Dorothea V Urbach	DA (SA)
March	1995	Dr Neville Botha	FFA (SA)
		Dr Alan C Chesterton	FFA (SA)
		Dr Arthur A Roberts	FFA (SA)
		Dr Johannes M Smalberger	FFA (SA)
		Dr Marco S Wisniewski	FFA (SA)
		Dr Errol M Cornish	DA (SA)
Sept	1995	Dr Neil A Moodley	FFA (SA)
		Dr Bernard JCJ Reidel	FFA (SA)
		Dr Gregory J Torr	FFA (SA)
March	1996	Dr Peter J Bailey	FCA (SA)
		Dr Gert M Brynard	FCA (SA)
		Dr Spencer P Burke	FCA (SA)
		Dr Jorge F Cardoso	FCA (SA)
		Dr Sophia M Brouckaert	DA (SA)
		Dr Steven P Froese	DA (SA)
Sept	1996	Dr Mark B Bloch	FCA (SA)
		Dr Glenda Brummer	FCA (SA)
		Dr Hilary Lapham	FCA (SA)
		Dr David Russell	FCA (SA)
	1996	Dr Martin J Brossy	FRCA
		Dr Thomas G Ruttman	MMed (Anaes)
		Prof Peter D Potgieter	MD (UCT)
March	1997	Dr Giuseppe di Bartolo	FCA (SA)
		Dr Natasha du Toit	FCA (SA)
Sept	1997	Dr Dhanesh Chavda	FCA (SA)
		Dr Zane Farina	FCA (SA)
		Dr Luis F Montoya-Pelaez	FCA (SA)
		Dr Hanlie van Dyk	FCA (SA)
		Dr Cornelius A van Wyk	FCA (SA)
		Dr Faustina M Deveer	DA (SA)
		Dr Deon A Stoltz	DA (SA)
		Dr Stephen J Wimbush	DA (SA)
March	1998	Dr Robert OS Grieve	FCA (SA)
		Dr Andre G Phillips	FCA (SA)
		Dr Johannes P D'Assonville	DA (SA)

Sept	1998	Dr AQ Brederode	FCA (SA)
		Dr Roger H Natrass	FCA (SA)
		Dr Harald KS Steinhaus	FCA (SA)
March	1999	Dr Panagiotis Alexandris	FCA (SA)
		Dr Lisa Chin	FCA (SA)
		Dr Steven P Froese	FCA (SA)
		Dr Mark Stephen Head	FCA (SA)
		Dr Natalie Hendricks	FCA (SA)
Sept	1999	Dr Hermanus A Lonnee	FCA (SA)
		Dr Charl A van Teijlingen	FCA (SA)
	1999	Dr Bernard CJ Reidel	MMed (Anaes)
		Dr AR Reed	MMed (Anaes)
		Dr Paul N Whitehead	MMed (Anaes)
March	2000	Dr Eugene P Engela	FCA (SA)
		Dr Brian M Gardner	FCA (SA)
		Dr Mark J Gravenor	FCA (SA)
Sept	2000	Dr Craig H Bosenberg	FCA (SA)
		Dr Johannes H Els	FCA (SA)

DA RCP (Lond) RCS (Eng).....	20
DARCPS (Ire)	7
DA (ABA)	1
FFARCS (Eng)	16
MMed (Anaes)	36
FFA (SA)	183
FCA (SA)	32
DA (SA)	28
MD (UCT)	3
DSc (Med) (UCT)	1
PhD (UCT)	1
M Phil (Crit Care) (UCT)	1
MS (Minn USA)	1

DISTINGUISHED VISITORS TO THE DEPARTMENT OF ANAESTHESIA - UCT

- 1956 Professor Robert Macintosh, Head of the Nuffield Department of Anaesthetics, Oxford, UK.
- 1960 Professor Robert Macintosh, returning home from a tour of Japan via Singapore, Kuala Lumpur and Mauritius.
- 1961 Dr Sam Galloon from the Department of Anaesthetics, The Royal Infirmary, Welsh National School of Medicine - in exchange with Dr Jan Pretorius for one year.
- 1962 Professor William Woolf Mushin, Professor of Anaesthetics, Welsh National School of Medicine visited twice in this year to act as an Observer for the newly founded Fellowship of the Faculty of Anaesthetists examination of the College of Physicians and Surgeons of South Africa and to check on the standard of the FFA(SA). The fellowship was introduced in 1958.
- 1963 Dr Phillip Bromage of McGill University, Montreal, Canada.
Dr Olaf Norlander of Stockholm.
Dr Maia Mendez of Portugal
- 1965 Dr James Parkhouse, First Assistant, Nuffield Department of Anaesthetics, Oxford.
Dr Steven Steen of the Department of Anaesthesiology, State University of New York.
- 1967 Dr Michael Johnstone from Manchester. He is credited for having first used halothane in clinical practice in humans.
Dr Victor Goldman of the Eastman Dental Clinic, London, UK
- 1969 Professor Roy Simpson of the London Hospital who spent two weeks in the Department as he had similar research interests to those of Dr Julien Biebuyck who was studying the metabolic effects of Halothane on isolated rat liver preparations. His visit also made possible the implementation of a staff exchange between Dr Mike Howell who went to the London Hospital and Dr Richard Ellis who joined the UCT Department for one year. Dr Ellis was later the Head of the Department of Anaesthetics at St Bartholomew's Hospital. Dr Simpson presented the Department with the London Hospital Squash Trophy.
Dr Donald Campbell of the Glasgow Royal Infirmary.
Professor J Robertson of Edinburgh University
Dr G Corssen from Alabama, USA
- 1970 Dr J Eckenhoff, Head of the Department of Anaesthetics, Northwestern University, Chicago
Dr P Lund of Johnstown, Pennsylvania, USA.
- 1971 Dr John Inkster from Newcastle-upon-Tyne who came as guest of honour at the Congress of the South African Society of Anaesthetists.
Dr Stanley Feldman, a member of the Board of the Faculty of Anaesthetists, Royal College of Surgeons of England.
- 1972 Dr Ross Holland of Sydney and Secretary of the New South Wales Commission on Anaesthetic Deaths.
Professor A Forrester, Professor of Anaesthetics, Glasgow.
Professor E Cooper, Professor of Anaesthetics, Newcastle-upon-Tyne.



- 1973 Professor Julien Biebuyck, assistant Professor of Anaesthetics, Harvard Medical School, a guest of honour of the Anaesthetic Section at the 49th South African Medical Congress, who was welcomed as a most distinguished ex member of the UCT anaesthetic department.
- Dr Cyril Scurr, M.V.O., Dean of the Faculty of Anaesthetists of the Royal College of Surgeons of England who also examined for the FFA(SA).
- Dr R Morley of Australia
Dr John Dillon of Los Angeles, California, USA
- 1974 Professor T Cecil Gray formerly Professor of Anaesthetics at Liverpool University and now Dean of the Faculty of Medicine.
Dr John Nunn, Director of the Anaesthetic Research Unit, Medical Research Council Clinical Research Centre in England.
- 1975 Professor JA Thornton from Sheffield
Professor John Robinson from Leeds.
- 1976 Dr E Tal, Director for the National Council for Research and Development of the Office for the Prime Minister of Israel.
Mr Y Saphir, Deputy Director of the National Council for Research and Development (International Affairs) in Israel. Both were guests of the Council for Scientific and Industrial Research.
Dr Richard Ellis, Reader in Anaesthetics in Leeds.
Professor L H Blumgaart from Glasgow.
Professor M K Sykes of the Post-graduate Medical School, Hammersmith.
Dr Brian Kay from Derby.
Dr Cory Ser Vaas, Editor-in-Chief of the Saturday Evening Post for an interview.
- 1977 Sir Ralph Marnham, President of The Medical Defence Union.
Dr A A Spence, Editor of the British Journal of Anaesthesia.
Dr David White, Head of the NHS Anaesthetic Department, Northwick Park Hospital, London.
Professor Leo Strunin from the London Hospital.
Dr Peter Horsey of Southampton, UK.
- 1978 Professor Cedric Prys-Roberts from Bristol.
Professor John J Bonica, Secretary General of the World Federation of the Societies of Anaesthesiologists (WFSA)
Professor Jan Crul from St. Radboudt Ziekenhuis, Nijmegen, Holland.
Professor J Gibbs, Christchurch Clinical School of Medicine, New Zealand.
Professor Cyril Conway of Westminster Hospital, London who spent two weeks as a member of the Department at UCT.
- 1979 Dr Tony Davenport, Senior Anaesthetist, Northwick Park Hospital, London.
Professor John Downing, Professor of Anaesthetics, University of Natal.
Dr Michael Rosen of the Welsh National School of Medicine, Cardiff.
Dr Gordon Bush, Alderhey Children's Hospital, Liverpool.
Dr M Morgan, Royal Post-graduate School of Medicine, Hammersmith, London.
- 1980 Professor D Gordon McDowell of Leeds University (Simms Commonwealth Travelling Professor)
Dr Michael FM James, Godfrey Huggins School of Medicine, Zimbabwe. Ethnor Travelling Lecturer. (Later to be the third Professor and Head of the Department at UCT).

Dr Gareth Jones , Division of Anaesthesia, Clinical Research Centre, Northwick Park, Harrow, UK. Later the first Professor of Anaesthetics at Cambridge.
 Dr J Brock-Utne, Department of Anaesthetics, University of Natal.
 Dr Rick Hawkins, Chief Research Scientist
 Hershey Medical School, Pennsylvania, USA. (Clause 18 Visitor for the Liver Research Group/Liver Clinic). In Prof Julien Biebuyck's department, later Professor of Physiology in Chicago.

- 1981 Dr Michael Halsey, Chief Scientist, Clinical Research Centre, Northwick Park, UK.
 Dr Selwyn Crawford, Director of Anaesthetics, Birmingham Maternity Hospital. UK.
 Professor Burnell Brown, Professor of Anaesthetics, University of Arizona , USA.
 Dr E Betts, Department of Anaesthesia, Children's Hospital, Philadelphia, USA.
 Dr Robert Sladen, Department of Anaesthetics, Stanford Medical School, USA. Also ex UCT Medical School.
 Professor D Langrehr, Department of Anaesthetics, Groningen , The Netherlands.
 Dr Enraght - Moony from Saudi Arabia (An ex member of the Department).
 Dr Harry Kingston , Janssen Exchange Lecturer from the University of Natal.
 Dr Gjessing from Oslo, Norway.
 Dr Sacks from Houston, Texas, USA.
- 1982 Dr Christoffel G Schoombee, Director of Surgical Intensive Care at the Johannesburg Hospital and Ethnor Exchange Lecturer .
 Professor Wolfgang Dick, Clinic of Anaesthesiology, Mainz Medical School , Mainz, Germany.
 Professor A Doenicke of the University of Ulm, West Germany.
 Dr Sam Galloon of Toronto, Canada. Sam was in the UCT Anaesthetic Department in 1961.
 Professor Clive Solomons of the Colorado Medical School, Denver , USA.
 Professor Robert and Dr Sue Vaughan of Tucson Medical School, Arizona, USA.
 Dr Robert Jedeiken, from Meir General Hospital, Tel Aviv University Medical School, Israel and a former member of the Department.
 Dr B Fanley
 Dr P Holbrook
- 1983 Dr Gavin Kenny from the Department of Anaesthetics, Royal Infirmary, Glasgow. He was the first Clause 18 Visitor to the UCT Department of Anaesthesia.
 Professor ES Siker, President of the American Board of Anaesthesiology. Acted in the capacity of External Examiner for the Faculty of Anaesthetists of the College of Medicine of SA. (Readers are referred to Professor Siker's – the first Mushin Lecture) A Measure of Competence. *Anaesthesia* Special Article 1976; 31: 732-742
 Professor William B Runciman , Ben Travers Research Professor, Flinders Medical School, Adelaide, Australia. (a UCT graduate)
 Dr John Zorab of Bristol and Secretary of the Association of Anaesthetists of Great Britain and Ireland as well as Secretary of the Executive Committee of the World Federation of the Society of Anaesthesiologists.
 Dr E Krantz of Santa Monica, California . USA . (a UCT graduate)
 Dr R Edge of the Department of Anaesthetics, Witwatersrand University.
- 1984 Professor Don Moyes from Baragwanath Hospital .
 Dr M Miller also from Baragwanath Hospital (renamed The Chris Hani - Baragwanath Hospital , Witwatersrand University in 1997) Both visited the Department as the Janssen Exchange Lecturers.
 Dr Gavin Kenny of the Department of Anaesthetics, Royal Infirmary, Glasgow. This was his second visit as a Clause 18 Visitor.
 Dr Simon Faithfull from Rotterdam.

Dr David Goold, Head of the Department of Anaesthetics, Godfrey Huggins School of Medicine, Harare, Zimbabwe.

- 1985 Professor Donald Campbell from Glasgow and also The College of Medicine of South Africa Wellcome Professor.
Professor Carol Lake from Charlottesville, Virginia, USA .
Professor John Dundee from Belfast, Northern Ireland.
Professor Cedric Prys-Roberts from Bristol, UK.
Professor Gordon Bush from Liverpool, UK.
Dr Jose Ruprecht from the Department of Anaesthetics, Erasmus University, Rotterdam, Holland.
Dr Simon de Lange from Leiden, Holland. (a former member of the UCT Department)
Dr Bruce Scott from Edinburgh, Scotland.
Dr John Nunn from Northwick Park, Harrow, UK on his 2nd visit
Dr J Cameron-Howie from New York.
Dr P Larson from Stanford, California, USA .
Dr Jim Cottrell from Brooklyn, New York, USA .
Dr Jordan Katz from San Diego, California, USA who was another Clause 18 Visitor to the Department. (a former member of the UCT Department)
Dr JJ Franks from Nashville, Tennessee, U S A who spent several months in the Department researching the effects of halothane on albumin synthesis and doing clinical work.
- 1986 Professor RG Merin of the University of Texas was a Clause 18 Visitor to the Department.
Professor DA Rocke from the University of Natal was the Janssen Exchange Lecturer.
Dr Mandy Blackburn from Sheffield General Hospital.
- 1987 Professor Bradley E Smith of Vanderbilt University School of Medicine , Nashville, Tennessee was a Clause 18 Visitor for three weeks.
Dr Aileen Adams, Dean of the Faculty of Anaesthetists of the Royal College of Surgeons, England.
Professor Burnell Brown from the University of Arizona, USA on his 2nd visit.
Dr Margaret Branthwaite, Director of Intensive Care Service, The Brompton Hospital , England.
Dr Ian Inkster of Newcastle University.
Dr Robert Sladen of Duke University. (a UCT graduate)
Dr Theodore Stanley of the University of Utah, USA .
Dr Don Moir of Glasgow University.
Dr JAS Healey of Manchester University.
Dr John Sear a Reader in Anaesthetics at the Nuffield Department, Oxford University.
Professor Anthony P Adams of Guys Hospital, London , UK.
Professor Stanton-Hicks of Mainz , U S A .
Professor John Norman from Southampton, UK.
- 1988 Dr Carlos Parsloe, President of The World Federation of the Societies of Anaesthesiologists.
Professor Michael FM James from Witwatersrand University as the Janssen Exchange lecturer for the second time and who was appointed next Professor of Anaesthesia at UCT.
Professor NB Murray (Janssen's Exchange Lecturer for 1988).
Dr H Kingston from University Hospital, Portland, USA.
Dr R Vaughan from University Hospital, Cardiff, Wales.
- 1989 Professor James G Bovill of Leiden.
Professor Shamay Cotev from Jerusalem, Israel.

- Professor CJ Hull from Newcastle-upon-Tyne.
Professor Michael Rosen of Cardiff.
- 1990 Professor JG Jones from Leeds.
Professor J Michenfelder from the Mayo Clinic, Rochester, U S A.
Dr Edward Armitage from Brighton, UK.
Dr JM Hunter from Liverpool, UK.
- 1991 Dr Berta Pfurtschelle
Mr Graham Walsh, a technician, visited.
- 1992 Dr J van der Walt from Adelaide, Australia. (a former member of the department)
Professor Rob Sladen from USA. (a UCT graduate)
Dr Steven Slogoff from USA
Dr David Royston from Harefield Hospital, Middlesex, UK.
- 1993 Dr John Sear, Reader in Anaesthesia at Oxford University, spent one month in the Department as a Clause 18 Visitor.
Professor AR Aitkenhead from Nottingham, UK.
Professor DR Bevan from Vancouver, Canada.
Professor MJ Cousins from Sydney, Australia.
Professor Michael F Roizen from Chicago, USA.
Professor William B Runciman from Adelaide, Australia.
Dr Saywan Lim, President of The World Federation of the Societies of Anaesthesiologists from Kuala Lumpur, Malaysia.
Dr Rajinder Mirakhur from Queen's University, Belfast, Northern Ireland.
Dr Robert Sladen of Duke University, USA.
Dr M Maze from Stanford, USA.
Dr Gatler from the USA.
- 1994 Professor Pierre Foex from the Nuffield Department of Anaesthetics, Oxford, UK.
Dr L J Rice from USA.
Dr J Vulgamore from USA.
Dr Julian Pamm from USA (ex member of the Department)
Dr Berend Mets from USA (ex member of the Department)
Dr Godfrey Wright from Zimbabwe, to visit cardio-thoracics as an observer.
- 1995 Dr K Fouch
1996 Dr Keith Budd
Professor Jerrold Lerman from the Hospital for Sick Children, Toronto, Canada.
Professor Winston Parris from Vanderbilt University Hospital, Nashville, Tennessee, USA.
- 1997 Dr WJ Russell from Adelaide, Australia was the Clause 18 Visitor.
Dr Hahn from Germany
- 1999 Dr Roger E Thomington previous Head of Anaesthetic section at the Red Cross Hospital, UCT, and from Royal Liverpool Children's Hospital, Liverpool. UK
Professor David Hatch from the Institute of Child Health, London, UK.
Dr John E Stevens from John Radcliffe Hospital, Oxford, UK.
Dr George H Meakin of Royal Manchester Children's Hospital, Manchester, UK.
Dr Angus McEwan from Great Ormond Street Hospital, London, UK.
Dr Rob L Eyres of Royal Children's Hospital, Melbourne, Australia.
Dr Susan EF Jones from Birmingham Children's Hospital, UK.
Dr Marcin Rawicz from the Medical Academy of Warsaw, Poland.
Dr Johan van der Walt, a former member of the Department and now at Women's and Children's Hospital, Adelaide, Australia.

Dr W John Russell from the Department of Anaesthesia and Intensive Care, Royal Adelaide Hospital, Adelaide, Australia as a Clause 18 Visitor.

2000

Professor Jay Brodsky, a SASA Guest Lecturer from Stanford University, California, USA.

Professor R Mirakhur from Queen's University, Belfast.

Professor Brett B Gutsche from the University of Pennsylvania, USA.

Professor D Steward from the Children's Hospital, Los Angeles, USA.

Professor M Wood, Editor of Anesthesiology and from Vanderbilt University, Nashville, Tennessee, USA.

Professor M Harmer

Professor Adrian Bösenberg from the University of Natal. He has been appointed to the 2nd Chair of Anaesthesia at UCT in July 2001, in place of Professor John Viljoen who had retired.

Professor Berend Mets from the New York Presbyterian Hospital USA. (a former member of the Department)

Professor G Richards

Professor Chris Rout of the University of Natal.

University of Cape Town

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**MEMBERS OF THE ANAESTHETIC DEPARTMENT – UCT
1919 - 2000**

			START	LEFT	RIP
ABELS	DR	CHRISTIAN SAMUEL	1979	1983	
ABELSOHN	DR	JACOB NATHAN	1937	1979	1979
ABRAMOWITZ	DR	KELVYN	1983	1986	
ABRAMSON	DR	DAVID CHARLES	1987	1992	
ABSALOM	DR	MARION LYNN	1983	1986	
ADAMS	DR	MOGAMAT CASSIEM	1971	1973	
AGGETT	DR	MICHAEL JOHN	1986	1987	
AGINSKY	DR	MOZES	1963	1965	
ALEXANDRIS	DR	PANAGIOTIS	1995	1998	
ALLEN	DR	RAYMOND WILLIAM *	1988	1989	
ALLWOOD	DR	ANTHONY CLIFFORD	1997	FT	
ALLWRIGHT	DR	GEORGE TUNLEY	1978	1981	
ANDERSON	DR	AUSTIN CHARLES	1963	1965	
ANZISKA	DR	PATRICIA MICHEL	1973	1974	
APTHORP	DR	MILES *	1996	1997	
ARCHER	DR	GRAHAM GEOFFREY	1977	1994	
ARMSTRONG	DR	DAVID GEORGE	1989	1989	
ASHTON	DR	WILLIAM	1989	1990	
ATKINS	DR	LEAH	1955	1973	1976
AUGOUSTIDES	DR	ALEX THEMISTOCLES	1964	1976	1976
BABOOLAL	DR	HEMANT ADHAR	1995	1995	
BABST	DR	HANS van NIEKERK	1990	1994	
BAILEY	DR	MARGARET RUTH *	1989	1990	
BAILEY	DR	PETER JONATHAN	1990	PT	
BALL	DR	RICHARD WARWICK *	1974	1978	
BAM	DR	JOHN HENRY	1952	1954	
BAMPFYLDE-DANIELL	DR	GEORGE WARWICK	1919	1923	1937
BANDERKER	DR	EBRAHIM	1991	1991	
BARALE	DR	ANTHONY EDWARD	1988	1990	
BARBER	DR	JOHN *	1975	1975	
BARLEY	DR	ROBIN *	1978	1979	
BARLOW-RADEMEYER	DR	IVAN	1995	1996	
BARNES	DR	RICHARD DAVID	1975	1975	
BARWISE	DR	JOHN ALLAN	1987	1994	
BASS	DR	BARRY FENROY	1966	2000	
BATTY	DR	DIEDRE JANINE	1995	FT	
BAX	DR	GEOFFREY CHARLES	1971	1973	
BEAN	DR	ERIC	1972	PT	
BEECHEY	DR	ANDREW PETER *	1986	1986	
BEIGHTON	DR	RICHARD COLIN	1970	1970	
BELLAIRS	DR	GREGORY RALPH	1995	1996	
BENATAR	PROF	SOLLY ROBERT	1969	1972	
BENNETT	DR	PETER JOHN	1999	FT	
BERELOWITZ	DR	HARRY	1922	1973	1973
BERGH	DR	ANTON EUGENE	1995	1996	
BERKMAN	DR	ALAN CYRIL	1987	1990	
BERNING	DR	PETER DRUMMOND	1977	1981	
BEYER	DR	ELKE JOHANN *	1974	1976	
BIEBUYCK	DR	JULIAN FRANCOIS	1966	1977	
BINGHAM	DR	LEONARD ROGERS	1958	1958	
BINNEWALD	DR	EMILIA	1980	1983	

BLAINE	DR	EDWARD MARK	1979	1986	
BLAIR	DR	RONALD McALLISTER	1970	1973	
BLANKENBERG	DR	BRUNO	1952	1954	
BLOCH	DR	MARK BENJAMIN	1993	1999	
BLOM	DR	WILLEM PHILIPPUS	1976	2000	
BOLTMAN	DR	LEX LINNIHAN	1969	1970	
BOLTMAN	DR	MARY LINNIHAN	1986	1990	
BONNER	DR	WILLIAM DOUGLAS	1977	1982	
BOOYSE	DR	JUSTIN	2000	FT	
BÖSENBERG	DR	CRAIG HENDRIK	1997	2000	
BOTHA	DR	THEUNIS MARTIN	1962	1963	
BOTHA	DR	MICHIEL COENRAAD	1991	1994	
BOTHA	DR	NEVILLE	1994	1996	
BOURKE	DR	ALAN JAMES	*	1996	1996
BOWDEN	DR	PETER KEITH	1991	1995	
BRADFORD	DR	PETER	1988s	1988	1994
BRAND	DR	BEVERLEY ANNE	1993	1993	
BRESICK	DR	GRAHAM FRANK	1984	1984	
BRETHERTON	DR	KENNETH WILBUR	*	1966	1971 1985
BREWER	DR	JUDITH ANNE	1987	1992	
BRINK	DR	JOHAN GIVAN	1984	1984	
BROGDEN	DR	ANN-MARE	1993	1995	
BROSSY	DR	MARTIN JAMES	1985	PT	
BROUCKAERT	DR	SOPHIA MARY	1995	1996	
BROWN	DR	ANTHONY ROBIN	1977	1986	
BROWN	DR	RANDALL GARRET	1981	1981	
BROWN	DR	MICHAEL	1983	1986	
BROWN	DR	ROBERT GLEN	1989	1990	
BROWN	DR	GERALD FRANCIS	1977	1979	
BROWNE	DR	TROY STUART	1991	1996	
BROWNSTONE	DR	JOHN	1985	1985	
BRUCE	DR	LENERT DESMOND	1997	FT	
BRUK	DR	ISSY	1964	1966	
BRUMMER	DR	GLENDA	1996	1999	
BRUN	DR	FRANK	*	1967	1972
BRUWER	DR	PETER JAMES	1982	1984	
BRYNARD	DR	GERT MATTHYS	1992	1996	
BULL	DR	ANTHONY PATRICK	1974	1977	
BULL	PROF	ARTHUR BARCLAY	1952	1980	2001
BURGHER	DR	WILLEM ADRIAAN	1987	1992	
BURKE	DR	SPENCER PAUL	1992	1996	
BURMAN	DR	ARTHUR LEVITICUS	1961	1990	1990
BUTT	DR	ANTHONY DAN	1972	FT	
CAMDEN - SMITH	DR	KEVIN DEREK	1989	1990	
CARDOSO	DR	JORGE FONSECA	1992	FT	
CARSTENS	DR	JAN DANIEL	1949	1956	
CARTWRIGHT	DR	PETER STEWART	1993	2000	
CHAMBERS	DR	NEIL ANTHONY	*	1996	1999
CHAPMAN	DR	DAVID CAMPBELL	1978	1983	
CHAPPELL	DR	WILLIAM ALAN	1974	1983	
CHAVDA	DR	DHANESH	1993	1999	
CHESTERTON	DR	ALAN CLIVE	1992	1996	
CHIN	DR	LIZA	1996	2000	
CHORN	DR	ROBIN	1988	1990	
CITRON	DR	SAMUEL	1952	1960	
CLARKE	DR	ELAINE VALERIE	1970	1981	

CLEATON-JONES	DR	PETER EIDON	1992	1992	
CLOETE	DR	BRUCE	1980	1983	
CLOETE-HOPKINS	DR	DELIA	1999	1999	
COETZEE	DR	GERT JACOBUS	1996	1998	
COETZER	DR	HENDRIK MARTIN	1969	1998	
COHEN	DR	ABRAM HARRIS	1961	1989	1998
COHEN	DR	RONALD JACK	1972	1973	
COHEN	DR	BELINDA SHOSHANA	1992	1994	
COLE	DR	SHIRLEY	1948	1964	1972
COLLEN	DR	JUSTIN CECIL	1997	FT	
COLLIE	DR	JAMES ALEXANDER	1963	1967	
COLLIE	DR	JANNIE *	1996	1997	
COMBRINK	DR	JOHANNA IDA	1975	1978	
COMYN	DR	DAVID JOHN	1974	1978	
CONWAY	PROF	CYRIL *	1978	1978	
COOKE	DR	RICHARD DALE	1972	1984	
CORNELISSEN	DR	HEINRICH	2000	2000	
CORNISH	DR	ERROL MALCOLM	1988	1995	
COUPER	DR	JOHN LAWRENCE	1965	1966	1997
COWLIN	DR	JOHN ALBERT	1963	1986	2001
COX	DR	CHRISTOPHER JOHN	1988	1990	
COX	DR	PETER	1982	1986	
COXON	DR	JOHN DUNCAN	1963	1964	
CRIPWELL	DR	IAN TERENCE	1986	1990	
CRONJE	DR	CORNELIUS JOHANNES	1971	1981	
CRONJE	DR	STEVEN	1989	1990	
CROOKE	DR	IAN WILLIAM	1969	1971	
CURRIE	DR	GUY JAMES A	1964	1965	1983
CURRIE	DR	ANTHONY JOHN	1987	1988	
CURRIE	DR	JOHN STUART *	1996	1996	
CYWES	DR	ROBERT	1989	1989	
DANCHIN	DR	JACK ERROL	1966	1969	
D'ASSONVILLE	DR	JOHANNES PETRUS	1997	FT	
DAVIDSON	DR	ASHLEY CONRAD	1988	1989	
DAVIDSON	DR	JAMES SCHONLAND	1997	1997	
DAVIES	DR	EDWARD	1990	1996	
DAVIS	DR	STANLEY	1982	1993	
DAWSON	DR	JAMES WILLIAM	1988	1992	
DE VEER	DR	FAUSTINA MARY	1997	FT	
DE HAAN	DR	MIKE	1976	1989	
DE HAECK	DR	WOUTER *	1982	1982	
DE KOCK	DR	SERVAAS THOMAS	1990	1998	
DE LANGE	DR	SIMON *	1970	1977	
DE SOUZA	DR	DUNCAN	1993	1993	
DE VILLIERS	DR	DONOVAN DAVID	1989	1992	
DE VILLIERS	DR	DENNIS	1980	1987	
DE WAELE	DR	PAUL	1990	1991	
DE WET	DR	ANDRE	2000	FT	
DE WET	DR	DU TOIT	2000	FT	
DEKENAH	DR	CEDRIC JULIUS	1962	1963	
DI BARTOLO	DR	GIUSEPPE	1993	1997	
DICHMONT	DR	EDWARD VICTOR	1989	1993	
DICK	DR	ALISON ELIZABETH *	1976	1982	
DISSE	DR	WERNER *	1974	1975	
DÖPFMER	DR	ULRICH RUDOLF *	1992	1994	
DOWDLE	DR	SUSAN CATHERINE	1985	1986	

DRUMMOND	DR	ROBERT ANGUS	1984	1988	
DU PLESSIS	DR	CORNELIUS GG	1957	1958	
DU PLESSIS	DR	JEANNE MARIE ERICA	1963	1968	
DU PLESSIS	DR	LOUIS-HENRI	1990	1990	
DU PLESSIS	DR	JEAN PIERRE		1991	
DU TOIT	DR	HENDRIK JACOBUS	1960	1967	
DU TOIT	DR	NATASHA	1992	1996	
DU TOIT	DR	PIETER JACOBUS	2000	FT	
DUCKWORTH	DR	ROBIN ANTHONY *	1983	1984	
DYER	DR	ROBERT ANTHONY	1983	FT	
EICKHOFF	DR	SIBYLLE ANNA	1985	PT	
ELFERINK	DR	JEAN CHARLES	1982	1986	
ELK	DR	RAEL JEROME	1979	1988	
ELK	DR	ERROL IVAN	1979	1981	
ELLIS	DR	RICHARD HANCOCK *	1970	1970	
ELS	DR	JOHANNES HENDRIK	1996	2000	
ELSWORTH	DR	CHRISTOPHER PARRY	1986	1989	
ENGELA	DR	EUGENE PAUL	1995	FT	
ENRAGHT-MOONEY	DR	RODNEY NIXON	1975	1979	
ENZLIN	DR	LAURA EILEEN	1971	1972	
ERSKINE	DR	WILLIAM ALFRED	1969	1992	
ESPEN	DR	DAVID MAXIM	1986	1992	
ESSOP	DR	FATIMA	1998	FT	
ETOE	DR	SHEILA LOUISE	1976	FT	
EUSTON-BROWN	DR	MICHAEL	1961	1962	
EVANS	DR	NIALL RICHARD	1999	FT	
EVENEPOEL	DR	LUC JOHAN	1992	1996	
FACLIER	DR	GIL	1973	1976	
FALANGA	DR	FRANCA MARIA	1981	FT	
FARBAS	DR	JOSEF	1998	FT	
FARINA	DR	ZANE	1995	2000	
FARRELL	DR	MICHAEL CONLETH *	1978	1978	
FEHLMANN	DR	RENE *	1993	1995	
FENING	DR	ERIC	1991	1993	
FERREIRA	DR	ANTON LEOPOLD	1977	1982	
FINDLAY	DR	IAN BRUCE	1985	1990	
FISER	DR	FRANTISEK	1962	1965	
FLACK	DR	SEAN HUGH	1998	FT	
FLYNN	DR	MICHAEL ANTHONY	1973	1974	
FONTein	DR	BARTH THEODORUS	1971	1975	
FOURIE	DR	HANNELIE	1990	1990	
FOXELL	DR	RICHARD MAURICE *	1980	1982	
FRANK	DR	SIMON JACOB	1973	1975	
FRANKS	PROF	JOHN JULIAN *	1985	1985	
FREEDMAN	DR	CLAIRE	1970	1970	
FREEMAN	DR	RONALD	1999	FT	
FRENCH	DR	MARGARET CAMERON	1991	2000	
FRENCH	DR	NORA AGNES	1988	1991	
FRIEDLAND	DR	MATHIAS	1957	1966	1996
FRIEDLANDER	DR	GEOFFREY MERVIN	1986	PT	
FROESE	DR	STEVEN PHILIP	1993	1999	
FRYER	DR	MALCOLM	1976	1977	
FULLAGER	DR	ERNEST WANAND	1991	1991	
FULLER	DR	THOMAS ARTHUR	1939	1953	1958
FULLER	DR	JULIAN CORBETT	1983	1989	
GALLAGHER	DR	MICHAEL BRUCE	1979	1984	

GALLOON	DR	SAM	1961	1963	1997
GANE	DR	GERALD ADRIAN	1975	1978	
GARABEDIEN	DR	EVA MADELINE	1936	1936	?
GARDNER	DR	SUSAN VARDI	1990	FT	
GARDNER	DR	BRIAN MARK	1996		
GARRETT	DR	HYDE WILLIAM	1983	1985	
GASSNER	DR	BEATRIX	1978		
GASSON	DR	JOHN VICTOR	1984	1991	
GER	DR	SELWYN SOLOMON	1977	PT	
GLATT	DR	PEARL	1938	1938	?
GLIEMAN	DR	ROWLAND	1972	1973	
GODLEY	DR	MARK BRIAN	1993	1993	
GOLDBLATT	DR	BILLY	1966	1970	1996
GOLDMANN	DR	GARY IAN	1990	1995	
GORDON	DR	MARTIN ALLAN	1969	1971	
GORDON	DR	PETER CRICHTON	1979	FT	
GORDON-FORBES	DR	ALGY	1920	1941	1941
GOTTSCHALK	DR	LEWIS ISAAC	1984	1990	
GRANT	DR	ROBERT	1986	1990	
GRANT	DR	MICHAEL LEONARD	1973	1973	
GRAVENOR	DR	MARK JOHN	1997	2000	
GRIEVE	DR	ROBERT OLIVER	1993	1998	
GROSS	DR	ISRAEL	1970	1970	2001
HACKING	DR	DOUGLAS PERCIVAL	1991	1991	
HACKING	DR	EDGAR BOLTON	1946	1951	1998
HACKING	DR	EDGAR BOLTON	1970	1972	1998
HAGEN	DR	JUNE	1965	1967	
HANNA	DR	BARBARA MARY	1966	1967	
HARINGTON	DR	ANDREW PIERS	1987	1992	
HARRIS	PROF	S J	1988	1988	
HARRISON	PROF	GAISFORD GERALD	1951	PT	
HARRISON	DR	CHRISTOPHER GAISFORD	1984	1984	
HARRISSON	DR	MARY ETHEL	1972	1972	
HARTWIG	DR	GEORG	1999	FT	
HASSON	DR	JACQUES	1972	1974	
HAWKSWELL-CURTIS	DR	JOHN WARWICK	1974	1982	
HAYSE-GREGSON	DR	PAUL BERNARD	1982	2000	
HEAD	DR	MARK STEPHAN	1992	FT	
HEIJKE	DR	SYLVIA ANNIGJE	1983	FT	
HENDERSON	DR	GORDON GIFFARD	1949	1952	1990
HENDRICKS	DR	NATALIE	1995	2000	
HEWITT	DR	JENNY	1983	1983	
HEWLETT	DR	ROSELLE MARY	1970	1972	
HEYNS	DR	MATTHYS HENDRIK	1960	1975	1988
HEYNS	DR	PHILIP DANIEL S	1980	1985	
HILL	DR	SAMUEL REGINALD	1945	1945	
HILL	DR	ELIZABETH AUSTIN	1984	1984	
HIRSCH	DR	GEORGIA	1988	1990	
HIRSCHORN	DR	GEORGE	1986	1988	
HOCHSCHILD	DR	GERALD	1932	1942	1971
HODSMAN	DR	NADIA	1988	1989	
HOFFMAN	DR	SEYMOUR AM	1960	1961	
HOLDEN	DR	DOUGLAS ALFRED	1985	1996	
HOLT	DR	BEVERLEY LEE	1974	1975	
HORAK	DR	LINDLEY ROSSEAU	1977	1988	
HORRIGAN	DR	PETER JOHN	1959	1976	

HOWELL	DR	ALAN MELVILLE	1980	1985	
HOWELL	DR	MICHAEL ERIC	1964	PT	
HUGHES	DR	JANE EVELYN *	1979	1984	
HUMAN	DR	JOHN URBAN	1947	1948	1948
HUNDLEBY	DR	CHRISTOPHER JOHN	1965	1982	
IRVING	DR	GORDON ALISTAIR	1975	1993	
ISMAIL	DR	ABDULLAH	1972	1981	
JACOBS	DR	GEORGE EVERARDUS	1987	1991	
JACOBS	DR	DANIEL WILLEM	1990	1995	
JACOBS	DR	GIDEON VAN WYK	1995	1995	
JACOBSON	DR	JACOB	1963	1967	
JAMES	PROF	MICHAEL FRANK	1988	FT	
JARVIS	DR	ESTER MARGARET	1971	1972	
JEDEIKIN	DR	ROBERT JOSEPH	1969	1973	
JENKIN	DR	PETER STAPLETON	1947	1998	
JOHNSTON	DR	SARAH JOY	2000	FT	
JOLIFFE	DR	DIANA *	1992	1994	
JONES	DR	CECIL STANLEY	1952	1961	1999
JONES	DR	MARGARET ELAN *	1965	1965	
JONES	DR	RICHARD DEREK	1990	1995	
JORDAAN	DR	ROBERT	1969	1975	
JOSEPHSON	DR	MARK ALAN	1988	1993	
JOWELL	DR	DEREK MARK	1961	PT	
KABRUN	DR	ELI *	1963	1963	
KAPLAN	DR	SIGMUND *	1965	1966	
KASS	DR	MARTIN BENJAMIN	1973	1975	
KATZ	DR	JORDAN	1985	1985	
KAUR	DR	PARAMJIT *	1990	1992	
KAYE	DR	STUART EVAN	1969	1989	
KEAN	DR	HAROLD MICHAEL	1970	1974	
KEET	DR	PETRUS WILHELMUS J	1920	1921	
KEET	DR	KENNETH LAWRENCE	1986	1992	
KEETON	DR	LYNNE DENISE	1988	1994	
KENCH	DR	ANN	1967	1969	
KENDALL	DR	PATRICIA	1983	1986	
KENNY	DR	GAVIN *	1983	1983	
KHAN	DR	KHALID	1991	1992	
KIRSCH	DR	DAVID MENDEL	1996	1996	
KLEINMAN	DR	JAMES	1936	1936	
KNIFE	DR	SAREL	1952	1954	1998
KOCH	DR	JOHAN AUGUSTINUS	1948	1951	
KOHN	DR	RICHARD LEO	1972	1973	
KOLDITZ	DR	GERDA A DANIELA	1984	1984	
KOSHEVA	DR	OLGA LUBOMIROVA	1992	1995	
KOTTMULLER	DR	INGRID	1986	1986	
KRAMER	DR	MICHAEL SHERMAN	1972	1974	
KRANZ	DR	EVAN MICHAEL	1974	1976	
KRIEL	DR	AMELIA	1998	FT	
KRIGE	DR	JACOB STEPHANUS	1986	1987	
KRIGE	DR	SIMON JOSEPH	1986	1988	
KRUCK	DR	MICHAELA SIEGUNDE *	1994	1995	
KUPERMAN	DR	AVRA	1986	1987	
KUSSMAN	DR	BARRY DAVID	1989	1994	
LAMB	DR	KENNETH *	1990	1990	
LAMBRECHTS	DR	WILLEM van der MERWE	1960	1962	
LAPHAM	DR	HILARY	1993	1996	

LATHAM	DR	ASHLEY	1993	1993		
LAZARUS	DR	ERNEST EMANUEL	1936	1938		
Le GRANGE	DR	MICHAEL HOWARD	1985	1990	1998	
LEADER	DR	GEOFFREY LEONARD	1967	1968		
LEAN	DR	CHRIS	1990			
LEEUVENBERG	DR	PETER LUDOLF	1949	1949		
LENNOX	DR	GORDON STUART	1980	1984		
LEVIN	DR	JACOB	1961	1994	2000	
LEVIN	DR	PETER JOE	1969	1977		
LEVITT	DR	NAOMI SHARLENE	1996	1996		
LEWER	DR	BRIAN	1989	1991		
LIBERMAN	DR	ERNEST ISAAC	1934	1939		
LICHTMAN	DR	ANTON RODNEY	1983	1987		
LIEBENBERG	DR	ALFRED JOHN	1965	1972		
LIESCHING	DR	JONATHAN LEONARD	1984	1989		
LINDE	DR	STUART ALAN	1969	1976		
LINTON	DR	DAVID MICHAEL	1979	1997		
LLEWELLYN	DR	RICHARD LESLIE	1985	FT		
LOGHDEY	DR	REHANA	1993	1993		
LONNEE	DR	HERMANUS ANTONIUS	1995	1999		
LOPELMANN	DR	FRIEDERIKE LUISE	1991	1993		
LOPEZ	DR	JULIETTE TERESA	1977	FT		
LOURENS	DR	MARCH	1997	1997		
LOUW	DR	ANDRE DeVILLIERS	1978	1987		
LUND	DR	CHARLES ROBERT	1983	1988		
MAC DONALD	DR	ALISTAIR GRAY	1977	1998		
Mac GILLIVRAY	DR	ROBIN GREGOR	1979	1983		
MAC KELLER	DR	MARJORIE MAY	1984	1984		
MacLEOD	DR	WENDY	1987	1990		
MAKEIN	DR	MICHAEL CHARLES	1984	1989		
MALHERBE	DR	PETRO HENRIETTE	1957	1981		
MALHERBE	DR	STEPHAN	1995	1995		
MANELI	DR	NOZIZWE	1998	FT		
MANTEL	DR	LEOPOLD HANS	1982	1988		
MARAIS	DR	ALIT LIEBENBERG	1982	1987		
MARAIS	DR	JOHAN	1997	FT		
MAROT	DR	NIGEL ROBERT	1982	1994	1999	
MASSING	DR	MARIA ELIZABETH	1963	1989		
MAUGHAN-BROWN	DR	GEOFFREY BRIAN	1980	1982		
MAWSON	DR	PHILIP JOHN	*	1980	1981	1998
MAYTOM	DR	PETER HERBERT	1955	1955		
McCANN	DR	MARY URSULA	1988	1990		
McCLARTY	DR	COLIN PETER	1985	1991		
McCONNELL	DR	DAVID HENRY	*	1969	1969	
McINTYRE	DR	DONALD FRAME	1977	1978		
McKENDRICK	DR	DOUGLAS ROBERT	1988	1993		
McLEOD	DR	BRUCE	*	1989	1990	
McMURRAY	DR	TERRY	*	1984	1985	
MERIN	PROF	ROBERT	*	1986	1986	
METS	DR	BEREND		1988	1993	
MEYER	DR	KIM		1991	1991	
MEYEROVITZ	DR	LESLIE SOLOMON		1955	1956	
MICHELL	DR	WILLIAM LANCELOT		1977	FT	
MIKLEM	DR	NATHANIEL J	*	1952	1954	
MILLER	DR	DONALD MUNRO		1980	1984	
MILLER	DR	JAMES COLEBROOK		1980	PT	

MILLER	DR	MALCOLM GREGORY	2000	FT	
MILNE	DR	MARY CHRISTINE *	1974	1983	
MISNUNER	DR	ZELICK	1964	FT	
MITCHELL	DR	JOHN	1920	1921	?
MITCHELL	DR	MICHAEL DAVID	1973	1973	
MONTGOMERY	DR	STEPHAN BARR	1965	1966	1986
MONTOYA-PELAEZ	DR	FELIPE	1993	1998	
MOODLEY	DR	NEIL ANTHONY	1992	PT	
MOONY	DR		1978		
MOORES	DR	PATRICIA ANNE	1986	1986	
MORGAN	DR	RODNEY NIGEL *	1978	1980	
MORGAN	DR	BRIAN JOHN	1991	1991	
MORKEL	DR	HENDRIK JOHANNES	1961	1965	
MORRELL	DR	DAVID FRANCIS	1974	1989	
MOSS	DR	CECIL	1961	1989	
MOUTON	MR	JACQUE PIERRE	1990	1990	
MUIR	DR	ROYDEN McINTOSH	1924	1947	1948
MUIR	DR	JAMES WILLIAM	1994	1994	
MUSTO	DR	PATRICK PHILIP *	1990	1994	
MYBURGH	DR	ADRIAAN LOUIS	1993	1995	
NAFTE	DR	LOUIS ELLIS	1969	1971	
NATTRASS	DR	ROGER HENRY	1995	1998	
NEPGEN	DR	PAUL ROBERT	1988	1988	
NEVEN	DR	KILPATRICK	1990	1990	
NIEUWVELD	DR	ROBERT WIJNAND	1984	FT	
NISBET	DR	DAVID ALISTAIR	1986	1988	
NURICK	DR	IVAN JAMES	1965	1981	
NUSSBAUM	DR	CLIVE JOEL	1981	1989	
O'MAHONEY	DR	JAMES FINBAR	1982	1984	
O'NIELL	DR	HUGH CYRIL *	1974	1974	
O'REGAN	DR	DESMOND NIAL	1991	1993	
OZINSKY	PROF	JOSEPH	1950	PT	
PAMM	DR	JULIAN DAVID	1982	1993	
PAPE	DR	JOHN LESTER	2000	FT	
PARBHOO	DR	NAGIN PARAG	1980	1995	
PATERSON	DR	DONALD WELLWOOD	1979	1982	
PAWINSKI	DR	ROBERT ALEXANDER	1995	1996	
PAYNE	DR	KEITH ATTWOOD	1973	1973	
PETERS	DR	ERIC BREMNER	1970	1970	
PETERS	DR	ROBERT IAN	1974	1975	
PHILLIPS	DR	ANDRE	1994	1998	
PHILLIPS	DR	KAREN ANN	1999	FT	
PIENAAR	DR	PETRUS	1989	1991	
PIENAAR	DR	LOUIS	1991	1991	
PIERCY	DR	JENNA	2000	FT	
PILLAY	DR	GOVINDASAMY SUBRA	1971	1972	
PIVALLIZA	DR	EVAN GRAHAM	1990	1993	
POGRUND	DR	NATHAN EDWIN	1974	1974	
POLDERMAN	DR	PIETER CORNELIS	1993	1995	
POSEL	DR	DAVID ARNOLD	1988	1990	
POTGIETER	PROF	PETER DANIEL	1970	1995	
POTGIETER	DR	HELET ELIZABETH	2000	FT	
PRESTAGE	DR	BELINDA ANN	1999	FT	
PRETORIUS	DR	JAN ALBERTUS	1957	1972	1972
PUCILOWSKI	DR	OLIVIER ROSILAND	1986	1989	
PURCELL	DR	DENEYS PATRICK	1999	FT	

RAFF	DR	MILTON	1983	1988	
REBSTEIN	DR	STEPHEN ERIC	1971	1976	
REDDY	DR	UGANTHREN	1999	2000	
REDELINGHUYS	DR	GEORGE PIETER	1974	1975	
REED	DR	ANTHONY RADDON	1993	FT	
REID	DR	PETER JAMES	1999	FT	
REYNEKE	DR	CATHERINE	1991	1991	
RIDDELL	DR	LYNN ALEXANDRA	1990	1990	
RIDLEY	DR	PETER JOHN	1992	1998	
RIEDEL	DR	BERNHARD JOACHIM	1992	1995	
ROBERTS	DR	ARTHUR ALEXANDER	1991	PT	
ROBINSON	DR	BRUCE JOHN	1984	1988	
ROCHE	DR	TONY *	2000	2000	
ROOS	DR	JOHN	1999	FT	
RORKE	DR	MICHAEL JOHN	1962	1969	
ROSE	DR	STEVEN	1984	1985	
ROSSOUW	DR	GIDEON JACOBUS	1959	1963	
ROUS	DR	STEPHEN ALEXANDER	1997	FT	
ROUX	DR	STEPHAN	1989	1989	
ROUX	DR	PIETER	1997	FT	
ROUX	DR	BRYANT RAPHAEL	1999	FT	
ROY	DR	ERICA	1969	1971	
ROZWADOWSKI	DR	MAREK ANTONI	1977	1980	
RUBIN	DR	JOSEPH	1964	1967	
RUND	DR	ROBIN LINDSAY	1987	1991	
RUSSELL	DR	DAVID	1996	1996	
RUSSELL	DR	W JOHN *	1999	1999	
RUTTMANN	DR	THOMAS GOTTHARD	1992	FT	
SACHS	DR	JOSELYN SHEBA	1991	1995	
SALTMAN	DR	PHILLIP BERNARD	1939	1951	
SAPSFORD	DR	BRUCE	1976	1982	1984
SARA	DR	BRONWYN ANN	1996	FT	
SAVAGE	DR	LYN MARGARET	1990	1990	
SCHLUGMAN	DR	DAVID	1989	1991	
SCHMAMAN	DR	NORMAN WALTER	1956	1971	?
SCHMIDT	DR	HANS JOACHIM	1957	1957	
SCHOLTZ	DR	CAROLYN VIVIENNE	1988	1988	
SCHOLTZ	DR	JACOBUS	1989	1989	
SCHRAM	DR	PETER	1982	1985	
SCHROETER	DR	BEATE	1999	2000	
SCHWEITZER	DR	BEVERLEY RUTH	1988	1989	
SEAR	DR	JOHN *	1992	1992	
SEGAL	DR	ALAN GREGORY	1969	1972	
SEGAL	DR	DEBORAH CHEREEN	1990	1994	
SELICK	DR	*	1978	1979	
SENIOR	DR	ELIZABETH MARY	1969	1993	2001
SHEAR	DR	NORMAN MORRIS	1966	1966	
SHEARING	DR	EVANGELINE- HACKING	1950	1960	
SHENNON	DR	CARMEL	1983	1985	
SHORTLE	DR	WALTER I	1978	1980	
SIEBERT	DR	PETER ROBIN	1976	1982	
SIMPSON	PROF	ROY *	1969	1969	
SLABBERT	DR	JOHN GEORGE	1982	1982	
SLOAN	DR	IAN ALEXANDER	1966	1970	
SMALBERGER	DR	JOHANNES MARTINUS	1991	1996	
SMIEDT	DR	NORMAN CYRIL	1947	1984	1988

SMIT	DR	ANDRE ODENDAAL	1965	1965	
SMIT	DR	IAN DAVID	1981	1982	
SMIT	DR	LOUIS	1998	1998	
SMITH	DR	JACK M	1924	1951	
SMITH	DR	JACOBUS SCHOEMAN	1971	1973	
SMITH	DR	CHRISTOPHER JOHN	1990	1990	
SMITH	PROF	BRADLEY E *	1987	1987	
SMITH	DR	LIONEL RALPH	1980	1984	
SMITHSON	DR	RAY PERCIVAL	1961	1975	
SOLOMON	DR	BASIL	1961	2000	
SOLOMON	DR	ERIC STANLEY	1978	1996	
SPARG	DR	COLIN	1984	1989	
SPELINA	DR	KAREL *	1985	1986	
STALS	DR	ALBERT JACOBUS	1993	1999	
STANSFIELD	DR	OLIVER ROBERT *	1971	1972	
STEFFENSSEN	DR	EDWARD BJARNE	1972	1973	
STEINHAUS	DR	HAROLD KARL	1994	FT	
STEVENS	DR	KEITH DOUGLAS	1985	1989	
STEYTLER	DR	ALICE MURIEL	1935	1935	
STIDWORTHY	DR	ALLEN JOHN	1982	1989	
STOLTZ	DR	GABRIEL GERT	1990	1994	
STOLTZ	DR	DEON ARTHUIS	1995	1995	
SWANEPOEL	DR	ALEXANDER LAWRENCE	1974	1995	
SWART	DR	CHRISTOPHER	1969	1980	1999
SWART	DR	PIETER	1997	1998	
SYMONS	DR	GARY *	1975	1975	
TAYLOR	DR	RUTH	1983	1983	
TEMBO	DR	DICK	1993	1993	
THOMAS	DR	EDITH HELEN *	1965	1965	
THOMAS	DR	WILLIAM ALFRED	1983	1983	
THOMAS	DR	JENNIFER MARY	1984	FT	
THOMPSON	DR	MARTIN	1995	1995	
THORNINGTON	DR	ROGER EDGAR *	1973	1985	
TOFTE	DR	BARCLAY CLEMENCE	1987	1990	
TOMA	DR	ADRIAN	1996	FT	
TOOKE	DR	LANCE HAMMOND	1995	FT	
TORR	DR	GREGORY JOHN	1992	PT	
TOWERS	DR	MAX	1963	1964	1982
TURNER	DR	DENIS MARTIN	1991	1999	
URBACH	DR	DOROTHEA VERA	1994	1996	
UYS	DR	PETER CORNELIUS	1977	1991	
VAN AMMERS	DR	PIETER MAX	1991	1994	
VAN DER MERWE	DR	JOHANN MARIUS	1986	1990	
VAN DER SPUI	DR	LINDSAY MELT	1948	1952	
VAN DER VEEN	DR	BINNO WATZE	1989	1994	
VAN DER WALT	DR	JOHAN	1974	1978	
VAN DONGEN	DR	JOHN PIERRE	1988	1988	
VAN DRUTEN	DR	ANDRE JOHANN	1990	1998	
VAN DYK	DR	HANLIE	1993	FT	
VAN DYK	DR	NAOMI	1999	FT	
VAN HEERDEN	DR	NOLA ANN	1980	1986	
VAN HOOGSTRAATEN	DR	ERIC GORDON	1930	1956	1976
VAN NIEKERK	DR	JOHANNA (Hannah)	1939	1939	
VAN ROOYEN	DR	ALBERT WILLEM	1988	1988	
VAN SOELEN	DR	BASIL THORNHILL	1989	1989	
VAN TEIJLINGEN	DR	CHARL ANDRE	1996	2000	

VAN WYK	DR	GERRIT JACOBUS	1993	1996	
VAN WYK	DR	CORNELIUS ANDRIES	1995	1997	
VAN ZIJL	DR	DIRK HENDRIK	1998	FT	
VAN ZYL	DR	RIAAN	2000	FT	
VAN ZYL	DR	HENDRIK ADRIAAN	2000	FT	
VARLEY	DR	BRUCE Q	*	1982	1982
VAUGHAN	DR	TREVOR DENNIS	1995	1999	
VILJOEN	DR	FRED JOHN	1974	1980	1980
VILJOEN	PROF	JOHN FREDERIK	1993	FT	
VILJOEN	DR	JOHAN JACOBUS	1988	1988	
VIS	DR	PIETER ALBERT	*	1960	1973
VIVIAN	DR	JENEFER CLARE	*	1984	1989
VON DELFT	DR	JENS HEINRICH	1998	FT	
VOSS	PROF	THOMAS JAMES	1959	1977	
WALKER	DR	DAVID ANTHONY	1967	1972	
WARDLE	DR	NORMA MARY	1969	1969	
WARREN	DR	JOSEPH BRIAN	1969	1969	
WATSON	DR	TOM GORDON	1981	1986	
WEBSTER	DR	VICTORIA LOUISA	1997	1997	
WEINBERG	DR	JACK	1934	1942	
WEINBERG	DR	JOHN CLIVE	1967	1970	
WELGEMOED	DR	EMILE CORNELIUS	1998	FT	
WELLS	DR	KENNETH FRANCIS	1990	1998	
WESSELS	DR	DANTE	1999	FT	
WESTLAKE	DR	ATHENI	*	1994	1994
WHITAKER	DR	ANTHONY MICHAEL	1960	1961	
WHITE	DR	IAN WILLIAM	1974	1980	
WHITEHEAD	DR	MICHAEL JOHN	1986	1990	
WHITEHEAD	DR	PAUL NEVILLE	1989	1990	
WHITEHEAD	DR	PAUL NEVILLE	1996	1999	
WICHT	DR	JOHAN FREDRIK	1920	1921	1955
WICHT	DR	CHRISTIAAN L-WYK	1961	1990	
WIEBER	DR	JURGEN	*	1973	1978
WILHELM	MR	BERNHARD	1991	1991	
WILLIAMS	DR	BRYAN LEONARD	1970	1973	
WILLIAMS	DR	IVON	1974	1977	
WILLIS	DR	MICHAEL	1984	1990	
WILSON	DR	GRAEME SCOTT	2000	FT	
WILSON	DR	JOHN MICHAEL	1999	FT	
WIMBUSH	DR	STEPHAN JOHN	1996	1996	
WISENBERG	DR	TREVOR	1989	1990	
WISNIEWSKI	DR	MARCO SIEGFRIED	1983	1988	
WIUM	DR	DAVID HAROLD	1990s	1994	
WOEKE	DR	JAMES CALLENDER	1957	1958	1991
WOERMANN	DR	HANS	1992	1992	
WOOLF	DR	MERVYN HILTON	1986	1991	
WRIGHT	DR	IAN JAMES	1963	1966	
WRIGHT	DR	IAN GAVIN	1980	1984	
WYSE	DR	SHEENA DOBSON	*	1975	1975
YATES	DR	DW	1984	1984	
ZAACKS	DR	PHILIP LOUIS	1965	1970	
ZAMBELLIS	DR	HELEN HARRIET	1988	1993	
ZONDAGH	DR	CLAIRE	2000	FT	

* denotes overseas members who joined the department for short periods for further experience.

FT full time

PT part time

PROFESSORS FROM THE UCT DEPARTMENT OF ANAESTHESIA

- 1961 **CS Jones.** associate Professor and Head, Department of Anaesthesia, University of New South Wales, Australia.
- 1962 **Hoffman S.** Head – Department of Anaesthesia – Meir Hospital, Kfar Saba 1962-86.
- 1983 Head Division of Anesthesiology, Sackler School of Medicine, University of Tel Aviv
- 1984 Associate Professor of Clinical Anesthesiology, Sackler School of Medicine, Israel
- 1986 Head of Department of Anesthesiology & Intensive care, Assuta Hospital, Tel Aviv.
- 1963 **Bull AB.** Associate Professor of Anaesthesia UCT
- 1965 First incumbent Chair of Anaesthesia, UCT. July 1st 1965. Retired in December 1980.
- 1981 Emeritus Professor of Anaesthesia, UCT till 1984.
- 1972 **Harrison GG.** Associate Professor, Department of Anaesthesia, UCT.
- 1981 Professor and Head, Department of Anaesthesia, UCT. Retired 1987.
- 1988 Emeritus Professor, UCT.
- 1972 **Biebuyck JF.** Associate Professor and Head, Harvard Medical School. USA.
- 1977 Professor and Chairman, Department of Anesthesia. Pennsylvania State University College of Medicine, Hershey. USA
- 1983 University Chair in Anesthesia (Endowed Chair), The Pennsylvania State University.
- 1984 Eric A Walker Professor of Anesthesiology (Endowed Chair) “ “
- 1998 - Senior associate Dean for Academic Affairs, The Pennsylvania State University College of Medicine.
- 1973 **Voss TJV.** Associate Professor Department of Anaesthesia, UCT.
- 1979 **Couper JL.** Professor and Head, Department of Anaesthesia, MEDUNSA.
- 1980 **Benatar SR.** Professor and Head, Department of Medicine, UCT.
- 1986 **Potgieter PD.** Associate Professor, Department of Anaesthesia, UCT.
- 1989 **Morrell DF.** Professor and Head, Department of Anaesthetics, University of Witwatersrand.
- 1991 **Brown AR.** Associate Clinical Professor of Anesthesiology, College of Physicians & Surgeons, Columbia University, New York.
- 2001 – Clinical Professor of Anesthesiology, College of P & S, Columbia University.
- Director, Orthopaedic & Regional Anesthesia, Acute Pain Management. College of P & S.
- 1998 **Mets B.** Associate Professor of Clinical Anesthesiology, Associate Vice-Chair, Resident Education, Department of Anesthesiology, Columbia-Presbyterian Hospital, New York, USA.
- Vice President (President Elect) Society for Education in Anesthesia.
- (addendum) Appointed Professor and Chairman of Anesthesia at Pennsylvania State University and the Milton S Hershey Medical Centre in September 2002.
- 2001 **Gordon PC.** Associate Professor, Department of Anaesthesia UCT.



Prof SR Benatar



Prof JL Couper



Prof PD Potgieter



Prof JF Biebuyck



Prof J Ozinsky



Prof R Brown



Prof S Hoffman



Prof B Mets



Prof PC Gordon

THE JOINT STAFF AGREEMENT 1951

EXTRACTS

4 Employment of Joint Salaried Medical Staff:

(1) A salaried medical staff (hereinafter referred to as "the joint medical staff") shall be employed to serve jointly the Faculty of Medicine of the University and the teaching hospitals.

(2) The joint medical staff shall-

(a) provide, with the assistance of medical interns employed by the Administration, services in all branches of medicine to patients at the teaching hospitals ;

(b) provide all formal and clinical teaching in all branches of medicine to students at the University ;

(c) provide all pathological services for the teaching hospitals existing at the date of coming into operation of this agreement and the associated teaching of students of the University ;

(d) provide teaching by radio-diagnosticians of anatomy and physiology, with the aid of radiological apparatus of the University and films of the teaching hospitals, of students of the University in the second year of their course ;

(e) undertake such medical research as can be reasonably be combined with the other services ; and

(f) serve in a consultative advisory capacity, whenever so required, to the University in respect of any matters relating to the Medical School of the University and to the Administration in respect of any matters relating to provincial hospitals.

(3) (a) The Provincial Administration (or the University) shall be responsible for the payment of salaries and other emoluments of those members of the joint staff towards whose salaries it makes the greater contribution as provided in clause 10 (1) and each authority shall pay to the other the contribution as laid down in that clause.

(b) The Provincial Administration, through the Medical Superintendent, shall have control over the non-academic duties of the joint medical staff and the University through its professors and lecturers-in-charge over their academic duties.

(4) The establishment of the joint medical staff shall consist of whole-time posts of professor and posts, which shall be whole-time or part-time, of medical practitioner.

(5) Until such time as otherwise agreed between the University and the Administration, the following shall be the grades and salaries of posts of professor and whole-time posts of medical practitioner :

Professor	£2500 pa
Medical Practitioner, Grade G	£2000 pa
Medical Practitioner, Grade F	£1800 pa
Medical Practitioner, Grade E	£1600 pa
Medical Practitioner, Grade D	£1200 x 50 - £1500 pa
Medical Practitioner, Grade C	£1000 x 50 - £1200 pa
Medical Practitioner, Grade B	£720 x 40 - £960 pa
Medical Practitioner, Grade A	£500 - 600 - 660 - £720 pa

(6) Part-time medical practitioners shall be remunerated on an annual basis, the annual salary to be fixed on the basis of one eleventh of the whole-time salary of the post per session allocated to the part-time incumbent. Where the whole-time salary of the post is on a scale, the part-time incumbent's salary shall be normally calculated on the minimum of such scale.

(7) The Medical Superintendent and the Assistant Medical Superintendents of Groote Schuur Hospital shall be on the Faculty of Medicine of the University and extracts from the minutes of the meetings of the Faculty relating to the hospital shall be sent as a matter of routine to the Director of Hospital Services together with a statement of those present.....

(3) (b) The Heads of Divisions shall be:

(iv) Ancillary Division :

The Head of the Ancillary Division shall be one of the heads of the departments within this Division Elected annually by the occupants of posts of Medical Practitioner, Grades D, E, F and G within the Division.....

V Ancillary Division

(i) Department of Radio-diagnosis, GSH

- Department of Radiotherapy, GSH
- (ii) Department of Anaesthetics :
- 1 post Medical Practitioner, Grade G
 - 1 post Medical Practitioner, Grade F
 - (Part-time : 3/11ths Grade F)
 - 1 post Medical Practitioner, Grade E
 - 1 post Medical Practitioner
 - (Part-time : 3/11ths Grade E)
 - 3 posts Medical Practitioner, Grade D
 - 1 post Medical Practitioner, Grade C
- (iv) Department of Physical Medicine, GSH

10. Sharing by University and Administration of Costs of Joint Staff :

(1) The costs of salaries and cost-of-living allowances of the joint medical staff shall be shared between the University and the Administration on the following percentage basis, which shall be subject to review after three years :

Grade of Post	University	Administration
Professors	51%	49%
Medical Practitioner Grades D, E, F and G	25	75
Medical Practitioner Grades B and C	12½	87½
Medical Practitioner Grade A	5	95